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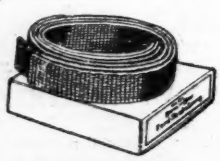

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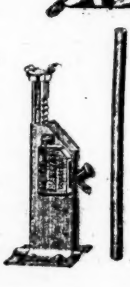

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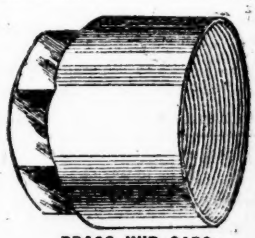

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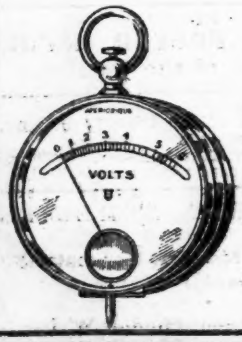

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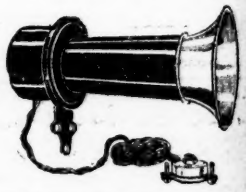

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FURTHER REMARKS ON THE TREATMENT OF ASTHMA BY PEPTONE.

BY

A. G. AULD, M.D.,

MEDICAL LECTURER, PRINCE OF WALES HOSPITAL, LONDON, ETC.

OVER a year's further experience has led to a modification of the peptone treatment of asthma described in my note in the JOURNAL of May 5th, 1917. The cases best suited for the treatment remain much as indicated therein—those, namely, characterized by favourable intervals, with freedom from bronchitis and much attendant emphysema. The more recent the disease, and the more regularly spaced the intervals, the better the result. Young patients as a rule do well. But old-standing cases respond provided the intervals are of a certain length. Irregular cases also respond if the disease is of comparatively recent origin (under five years). These findings serve to support the view as to the anaphylactic nature of the cases amenable to peptone. It is evident that after each main attack one would look for a certain minimal period of comparative quiescence, due to desensitization. Cases of practically continuous asthma are either non-anaphylactic in nature, or else the anti-anaphylactic mechanism has completely broken down.

If a certain quantity of a suitable peptone, such as Witte's, be introduced into the blood the symptoms of anaphylactic shock quickly supervene; no previous dose is necessary to induce the condition of sensitization. The late R. Weil[1] showed that if a normal liver be perfused with peptone, it quickly presents the same severe congestion and swelling as characterizes the sensitized liver after perfusion with the antigen. Hence the view arose that after the first or sensitizing dose of any antigen the anaphylactic shock due to the second dose was due to the rapid formation of peptone from proteolysis of the antigen by antibodies or enzymes called forth by the first dose, such antibodies being free in the blood and likewise attached to the tissue cells. This view, however, seemed to be no longer tenable after it was found that inert and non-protein or entirely non-nitrogenous substances, such as agar, pararabine (Bordet and Zuntz), silicic acid, were likewise capable of inducing anaphylactic-like shock. The explanation thereupon given was that the peptone was formed from the blood itself. These non-protein antigens were supposed to adsorb the antiferment (lipoidal in character) of the serum, leaving the ferment free to proteolyze the serum—a true autolysis. Jobling and Bronfenbrenner have vigorously supported this idea.[2] They affirmed that in these cases the blood would be found to contain peptone in excess, but this failed of confirmation by van Slyke's very delicate nitrous acid test for aliphatic amino-nitrogen. Van Slyke and Auer[3] also failed to find any difference in the content of protein cleavage products betwixt normal and anaphylactic guinea-pig lungs. Bayliss showed that for such a ferment action several hours were necessary, whereas the anaphylactic reaction is merely a matter of minutes. The most recent explanation is that of Professor Novy,[4] and is based on the fact that normal serum, just in the pre-clot stage, is toxic, due to a catalyzing agent, and is a parallel phenomenon with fibrin formation. A molecular change is induced in the matrix, resulting in tautomeric modifications. Thus the well-known acceleration of clotting produced by peptone is an expression of this change. When serum is digested with Witte's peptone, agar, or certain bacterial proteins, a similar but more intense toxicity is induced, which Novy believes to be identical with that occurring in the body cells and fluids during anaphylactic shock, as a similar explosive effect follows the injection of such toxified serum. In the body the toxicity, however, is of short duration owing to the mass action of the colloids. Novy holds the antigen to act merely as an inducing agent, of no toxicity in itself, and, at least in the case of agar, to be entirely recoverable from the toxified serum. Specific anaphylactic shock is due to the production of this poison from the blood and tissues by the inducing action of the antigen-antibody product.

If this view be correct (and no doubt there is a good deal to be said for it), there would apparently be no reason to select one substance in preference to another for purposes of desensitization, provided only it were capable of inducing this toxic effect after injection into the blood. Professor Novy, indeed, goes so far as to affirm that the toxicity of pathogenic bacteria is of the same order as that of agar, the intoxication of the host being invariably caused by the change induced in the plasma, the term "endotoxin" being a misnomer. But this must surely be limited to the production of the anaphylactic attack, without reference to the ulterior and specific effects of the antigens. Novy, indeed, seems to have overlooked certain important facts recorded by himself. He points out that in peptone anaphylaxis there is marked exophthalmos, both in rabbits and guinea-pigs, a symptom not found in anaphylaxis produced by any other agent. This undoubtedly proves a subsidiary specific action on the part of the peptone itself. As the asthmatic attack is usually characterized by a certain degree of exophthalmos, we are on safe ground in preferentially selecting peptone in its treatment, apart from its suitability as a medicinal agent as compared with most other substances.

Another important consideration refers to the range of action of peptone. No matter what the natural antigen responsible for the asthmatic attack, desensitization may be effected by peptone, as it exhausts the anaphylactic mechanism not only towards itself but also towards all other agents, as the experiments of Weil have shown. For instance, if egg-white be the sensitizing agent, a sufficient dose of peptone given during the period of sensitization will render a second dose of egg-white abortive. The desensitization therefore is non-specific in character, and from this it follows that skin tests for allergic reactions in respect of the proteins of various foods are rendered superfluous. Desensitization may therefore be accomplished by injecting a single large dose of peptone, but this is comparatively short-lived; small and increasing doses spaced over a considerable time are much more effective, as they produce a degree of immunization which is the equivalent of a prolonged desensitization. This is the method to be employed in asthma, but it may be mentioned that there are certain exceptional cases which appear to respond best to a preliminary large dose, followed by smaller and decreasing doses. It is a method, however, only to be used by those thoroughly conversant with the effects of the various dosages, and shall not be alluded to further.

The suggestion will naturally be made that the desensitization or immunization effected by peptone in asthma can only be temporary. This is true. The attacks cease for a time, but recur. Cases vary greatly in this respect, but in view of the painless method of treatment about to be described the repetition of the injections becomes a negligible factor so far as the patient is concerned. The peptone stops the attacks over a period roughly proportionate to their former frequency. Thus, if the attacks occurred at about weekly intervals, there should be a minimal remission of from six weeks to two months; if three-weekly, one of three or four months. In one case presenting a very severe attack every three months, there was a remission of nine months. Here one is tempted to put the question, If such cases are not anaphylactic in nature, how is this action of peptone to be explained, seeing the doses employed have no measurable effect on the circulation, etc.? Perhaps certain experiments of Abderhalden may be cited, showing that the proteolytic or peptolytic activity of blood serum is enhanced by the injection of a foreign protein. But here again one has to postulate protein as the causal agent, which always involves the possibility of anaphylaxis.

A consideration of the experimental work led me to try the intravenous injection of the peptone, and this was justified by the results. Not the least advantage of the method is its painless character, whereas subcutaneous injections create in certain subjects a considerable degree of pain and swelling after some hours. Intravenous injections demand great accuracy in respect of dosage, and so it became necessary to note carefully the effects of various preparations of peptone. Wide differences were encountered. As Witte's peptone became available, it was found to be of much greater potency than any other variety tried. The only other which gave satisfactory results was Armour's "ordinary" peptone.* It is unfortunate that at the first time of writing I was not aware that the Armour Company make two varieties of peptone—"ordinary"

* Armour and Co., Kingsway, London.

peptone and peptone "siccum." The latter is of inferior value for the purpose in hand, although it is to be feared that not a few practitioners have been supplied with it. The clinical results indicated that about two and a half parts of Armour's "ordinary" peptone are the equivalent of one part of Witte's peptone. Discussing the matter with Professor Halliburton, he very kindly undertook the examination of several varieties of peptone, and his analysis, weighed to the second place of decimals, is subjoined:—

	No. 1, Witte's Peptone.	No. 2, Armour's "Ordinary" Peptone.	No. 3, Armour's Peptone "Siccum."	No. 4, Fairchild's Peptone.
Primary proteoses ...	0.92	0.4	0.02	0.07
Secondary proteoses..	1.6	2.2	1.2	1.68
Peptone	0.3	0.2	1.55	0.9
Total	2.82	2.8	2.77	2.65

Professor Halliburton's figures are of great interest, particularly as showing the primary proteoses to constitute the deciding factor. For instance, although there are more secondary or deutero proteoses in peptone No. 2 than in No. 1, the latter contains considerably more than twice the amount of primary proteoses, and this corresponds with the clinical effects. No. 3, on the other hand, contains but a comparatively minute quantity of primary proteose, which explains its inefficiency. The purely peptone ingredient may be discarded, except that note may be made of the fact that it appears to act deleteriously when injected in large amount with the view of making up the deficiency in primary proteose.* That the primary proteoses are the ingredients almost entirely responsible for the specific physiological effects has also been proved experimentally in the careful work of W. H. Thompson.[5]

Technique and Dosage.

A 2 per cent. solution of Witte's (No. 1), or a 5 per cent. of Armour's (No. 2), are convenient for use. Witte's peptone is not entirely soluble, but it is more effective when partly in a fine suspension than it is after filtration. Dissolve the peptone as far as possible in normal saline (made up to three-quarters volume) by slightly agitating and warming at 37° C. Then add 1 mil. of a 2 per cent. solution of sodium carbonate for each ½ gram (5 grains) peptone. This ensures the requisite degree of fineness of the suspended portion. Make up to volume with normal saline, adding 0.25 per cent. phenol as a preservative. Care is to be taken in adding the alkali, as any excess may cause racemization of the peptone, rendering it inactive. Peptone No. 2 is similarly prepared, the alkali being employed in this case to neutralize its acidity.

As regards the dosage, it is only possible to make a general statement, as variations may be necessary. When the main attacks, whether occurring singly or more or less broken up, occur at fairly pronounced intervals, a limited number of measured doses is usually sufficient. Should slight attacks persist, the dose may require to be increased. A feeling of chilliness and discomfort indicates that the limits have been overstepped. On the other hand, the dosage must be reduced when the attacks present great frequency and irregularity. In such the anti-anaphylactic mechanism is weak, or, in other words, the immunity reserve is small and will only tolerate gentle stimulation. Experience alone can enable one to decide the dosage, according to the symptoms and progress of the case; also, patients differ very considerably in their response to peptone. Generally speaking, the initial dose in all cases may be fixed at 5 decimils (5 m). This contains ⅛ grain of Witte's peptone (No. 1) or ½ grain of No. 2. Increase by 2 decimils (roughly 3 m) every fifth day, until six injections have been given. Three or four more injections are to be given, employing in each the same dose as that given in the sixth injection. To this rule, however, there are exceptions. No reaction appreciable by the patient occurs. At any time during the course modifications in the dosage may be called for, as already indicated. In the case of children but a very slight reduction in the dose is necessary. No injection is to be given during attacks, and, when the latter occur at long intervals, begin the treatment about three weeks before one is expected. In all cases the diet should be low, and easily digested.

To administer the injection, cleanse the bend of the elbow with spirit (some hypersensitive patients may require local anaesthesia). Charge the syringe, and place the needle (a small one) apart. With the left hand grasp the patient's upper arm, the thumb passing across the biceps, and make gentle pressure. Pass the needle into the vein, and as soon as blood issues freely from it, *but not before*, withdraw the left hand, and maintain the needle immobile by it; affix the syringe, and make the injection slowly. No after-dressing is necessary.

I should like to take this opportunity of thanking those medical men who have sent me their observations. Up to the present, the reports received have been favourable.

* As Armour's peptone is not guaranteed of absolute uniformity in composition, it is advisable to use Witte's peptone, if obtainable. A peptone may be roughly tested before use by adding an equal volume of saturated aqueous solution of ammonium sulphate to a 10 per cent. solution of peptone and stirring with a glass rod. In a satisfactory sample a sticky precipitate comes down in considerable abundance, which adheres to the stirring rod.

REFERENCES.

[1] *Journ. Immunology*, 1917, vol. ii. p. 439. [2] *Journ. Exper. Med.* 1914–15, various papers. [3] Ibid., 1913, xviii. p. 210. [4] *Journ. Infec. Diseases*, May and June, 1917. [5] *Journ. Physiol.*, July, 1899.

A NOTE ON EPIDEMICS.

BY

JULIUS BURNFORD, M.B., M.R.C.P., D.P.H.,

CAPTAIN R.A.M.C.(T.C.).

EPIDEMICS in war time assume a special significance, for though the symptoms, at least at the outset, may be mild, so that, as far as the individual is concerned, it may have but a brief or transitory effect, in the aggregate the loss of man power, reckoned in days, may be enormous. As all classes are concerned the importance of this is obvious.

Furthermore, judging from the history of epidemics in the distant past, even a type of disease apparently trivial may in time intensify itself with most serious results, and it might well be supposed that in war, with its herding together of armies of men and workers of all kinds, this time element might be considerably shortened and the process of exaltation correspondingly hastened. Consequently, it seems important to visualize with the greatest possible precision any unusual circumstances connected with the health of armies and populations at the present time.

Bearing these points in mind, it seems to me that certain features in the prevailing epidemic are worthy of consideration.

There can be no doubt that it is widespread and advancing. The clinical manifestations are reproduced in each fresh case with the striking regularity which I had already observed at the beginning of an analogous if not the same epidemic overseas earlier in the year. Unfortunately my notes on these are all filed in —— General Hospital, and are beyond my reach. There is much doubt, however, as to its real nature. With the limitations of the present nomenclature we are driven to a diagnosis of influenza or pyrexia of unknown origin. The latter term, however, has become so closely associated with trench fever as to be almost synonymous with it, and, indeed, is unsatisfactory in any case; whilst the former is so loosely employed in various indefinite states of disease that it is equally unsatisfactory. And, indeed, there is some doubt as to the present epidemic being due to the influenza bacillus.

It is obvious that we are dealing with a specific infectious disease which, like all the zymotic fevers, has an incubation period, leading up to the onset and followed by stages of fastigium, acme, and defervescence by crisis. But what the specific infective agent is remains to be ascertained. We are faced with the possibility of its being as elusive as that of the other zymotic diseases. That it is infectious under certain conditions is evident, but it is undoubtedly dependent on environmental conditions, such as overcrowding, etc. For though cases have been admitted into general wards only a comparatively few sporadic cases have broken out amongst the patients in these wards. But in camps and billets and various offices cases have occurred in preponderating numbers. Overseas, where the epidemic first came to my notice in the beginning of April, it was at first confined to one large convalescent camp and apparently to the huts forming one subdivision of this camp. It would appear that no cases occurred at home at the time, but in the beginning of June, whilst stationed at a general hospital, cases presenting identical symptoms were admitted in large numbers, and in a week or two the epidemic had reached large proportions. It was evident there had been no change in the type of the disease.

Briefly the history is as follows: The onset is sudden, often the exact hour is given by the patient—as on parade, at meals, or in bed. There are severe pains in the head,

eyes, and back, with giddiness, shivering, sweating, and marked loss of appetite; prostration may be extreme. The conjunctivae are reddened and the mucosa of the palate and throat injected, whilst the tongue is clean, but occasionally furred. There is no rash, and only very rarely have I seen a slight erythema on the chest.

There is a rapid rise of temperature to 100° or 101° and occasionally to 103° or 104°, but the pulse is not increased out of proportion to this.

The most striking feature, however, is a general lymphadenitis. From an early stage, and increasing rapidly, there is an enlargement of the glands of the cervical region, which can be felt especially in the posterior triangle and above the clavicle, but firm pressure reveals innumerable hard, discrete, fairly prominent chains of glands, even up to the angle of the jaw and evidently beneath the deep fascia. The salivary glands are not affected. In many the axillary or inguinal glands are implicated and even the femoral glands; in several I have noted the epicondylar gland enlarged in the arm. The glands do not suppurate.

In severe cases the splenic dullness appears to increase, but this is always a difficult matter to decide, though there has certainly occurred pain on deep pressure in the splenic region.

The severe symptoms last about two days, and on the third day there is a marked improvement and the disease is practically at an end, and in a day or two many can return to duty. So far, sequelae and complications have been absent, but recent cases give the impression that there is an increase in the severity of the symptoms. In my earlier series of cases the stay in hospital was extended to ten days, as they had been admitted to the infectious block with a diagnosis of rubella, but all were well on the fourth day. The adenitis subsides more slowly, and a few glands can still be felt several days afterwards.

Briefly, then, the condition is one of acute fever with prostration, accompanied by a general polyadenitis out of all proportion to the local lesions and ending by crisis.

The incubation period is uncertain, but cases which have broken out in the wards suggest that it may be as little as two days; it must be remembered that only isolated cases have thus occurred. Bacteriological investigations throw, so far, no light on the etiology. No specific germs have been isolated from the pharynx or the blood.

The blood shows merely a differential change, in that the monomorphonuclear elements (the lymphocytes) are increased (to 40 per cent. or 50 per cent.), a condition one might anticipate with so much activity of the lymphatic system. In a few cases examined no albuminuria has been noted.

The disease is popularly termed influenza, but it is open to discussion whether it be an acute specific infection, as distinct an entity as any of the zymotic diseases, or an anomalous or aberrant form of any one of these, or, indeed, true influenza.

Of the latter it is easiest to speak first, as its causal agent is known. The term influenza has been used in a very loose manner to describe various conditions, but in the absence of the specific bacillus such diagnosis should not be made. This we have not yet found in the present epidemic. Clinically also it differs from influenza, and most especially with regard to complications and sequelae. It is true it resembles it in its epidemicity, its rapidity of spread, and in the great prostration produced. In most works on influenza no mention is made of a glandular complication, but in a small footnote in Nothnagel's *Encyclopaedia* it is remarked that two or three observers have found swellings of the cervical or other glands. It might be supposed, however, that in true influenza epidemics polyadenitis could hardly have been overlooked, had it occurred. Again, with regard to the blood change in influenza, though little is mentioned on the subject, it would appear that no special change occurs. A leucocytosis, varying with the severity of the inflammatory complications, is known, but no actual increase of lymphocytes is found, such as appears in the cases described above. On the whole, therefore, there is no precise evidence that we are dealing with influenza.

With regard to the zymotic diseases, rubella and perhaps mumps are both to be considered. Indeed, as already mentioned, the first cases I saw overseas were sent in to hospital as rubella. It has been suggested that it is an abortive form of rubella, and it is difficult to comment on this suggestion in the absence of any specific proof of an infective agent. The adenitis is perhaps more marked than rubella and the onset and general symptoms more sudden and severe, and there is no rash. However, it is of interest to note that I have at present in the isolation wards a case of German measles with marked eruption and furnishing all the symptoms, subjective and objective, of the present epidemic.

With mumps, mentioned by Parkes West[3] in the article referred to below, there is hardly a superficial resemblance. The salivary glands are never affected, nor have any of the complications or sequelae of mumps been observed. In West's series the majority of the children had previously suffered from mumps.

On the whole, seeing that the cases have up to the present been characterized by such a constancy of manifestations, it might be better to regard it as a distinct clinical entity. And in this connexion I suggest that it bears a marked similarity to the disease known as glandular fever. This is an infrequent condition, described first by Pfeiffer[2] in 1889; it occurs epidemically in children in the first decade, and is characterized by sudden onset, fever, slight pharyngitis, and marked polyadenitis, lasting a few days and subsiding without complications and sequelae. Several epidemics have been described, and the subject was exhaustively treated in an article by Dawson Williams in the *Lancet*.[1] In reading this article one is struck by the idea that the present epidemic is of the same nature, but occurring at a different age period. This is no insurmountable objection when one recognizes how all the zymotic diseases under war conditions have produced similar marked changes in the age period, so that mumps, rubella, measles, and chicken-pox, not to ignore the meningococcal infections and poliomyelitis, have all been of epidemic frequency in the armies.

If the facts enumerated here, then, as occurring in a large number of cases are in accord with observations in other districts it is evident that the polyadenitis is the characteristic manifestation of the epidemic. In order to identify the well-defined picture of the disease it might be well to classify it as glandular fever until its true nature can be determined. An opportunity for investigation certainly presents itself at the moment.

The method of infection is still merely conjectural. The pharynx is certainly slightly inflamed in all cases, but the extent of glandular implication is apparently out of all proportion to this, and unlike the ordinary picture presented in tonsillitis and allied conditions. But in this light one is reminded that in recent outbreaks of pharyngitis with severe general symptoms overshadowing the local lesions, the pneumococcus has been the causal factor.

The intestinal path of infection likewise cannot be entirely neglected, and it might even be that the virus arises in certain foodstuffs, the purity of which at the present day may not be always what could be desired.

An investigation of an affected gland itself might be productive of information. So far we have not thought it justifiable to excise a gland for such a purpose.

For the present we can only say that prophylaxis is concerned with proper hygienic conditions and the avoidance of overcrowding and bad ventilation.

June 30th.

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[1] Dawson Williams, *Lancet*, 1897. [2] E. Pfeiffer, *Jahrbuch für Kinderheilkunde*, Band xxix. [3] J. Parkes West, *Archives of Pediatrics*, 1896.

NASOPHARYNGEAL CONDITIONS IN MENINGOCOCCUS CARRIERS.

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THE application of antiseptic sprays to the nasal cavities has been the method of treatment mainly used to clear up carrier cases infected with the meningococcus of cerebro-spinal meningitis. Their wide variation in resistance to such treatment suggested that there must be factors in the anatomical or pathological conditions of the

nose or nasopharynx causing this variation which might be discovered by an appropriate investigation, and that as the result of the information so gained modifications in treatment might be devised which, by shortening the period of isolation, would have the effect of diminishing the number of carriers known to be in existence at any one time, and so not only aid in maintaining field strength, but also diminish the risk of outbreak.

Every facility has been afforded me to carry out such a research on the segregated carriers of the London district by the D.D.M.S., by Lieut.-Colonel M. H. Gordon, C.M.G., and by Captain A. Glover, and I am greatly indebted to these officers for this, and for their hearty co-operation and goodwill.

A priori one would expect a wide clean post-nasal space, free from adenoids, combined with a physiological nose, well drained and ventilated, to be favourable to the rapid clearing up of meningococcus infections; whereas unfavourable factors would be found in a nose of small capacity with thick irregular septum, and showing firm mucous contact between the middle turbinal bones and septum on the one hand and the outer wall of the nose on the other, in accessory sinuses draining through small obstructed ostia and possibly showing signs of inflammation, and in a shallow pharynx grossly or partially occluded by adenoids. Good breeding ground would be provided by the nooks and crannies in such a nasopharynx, and the antiseptic would find great difficulty in gaining entrance to the infected areas and spaces.

The method adopted has been as follows: Teeth were examined for caries and pyorrhoea, tonsils for enlargement and presence of septic material in the follicles and tonsillar fossae, while the oropharynx was examined from the point of view of size and the presence of abnormal factors; use of the post-nasal mirror, confirmed or corrected by direct examination with the finger, revealed the degree of adenoid growth present, as well as any enlargement of the posterior extremities of the turbinal bones or other abnormality; the nose was examined anteriorly by speculum to determine the state of the septum and the presence and degree of "firm mucous contact"; and, finally, the maxillary antra were transilluminated. In the later cases the effect on the tissues of the nose was investigated of a 1 in 6,000 solution of adrenalin chloride in normal saline in the form of a spray. Abnormal contact between mucous surfaces resisting this astringent treatment may fairly be called "obstinate."

Until the examination of the 47 carriers was completed I was very careful to remain in absolute ignorance of the duration of their previous treatment, being able only in this way to avoid any unconscious bias.

In order to provide a set of control observations an identical number of wounded men chosen haphazard from a military hospital were examined in the same routine way. These men were of about the same average age and previous conditions of life as the carriers.

To make it easy to estimate and compare the importance of the factors observed it was decided to adopt a scale of numerals to represent the degree of abnormality. On this scale "0" implies "normal," "5" that the abnormality was considered maximal. The intervening figures represent graduated degrees of departure from the ideal or physiological condition. This method allows of the ready calculation of averages, and on this system the results have been tabulated. Two tables are subjoined. Table I deals with the carriers. The cases are arranged in sequence, beginning with that of the shortest duration, and ending with that of the longest. Table I is subdivided into a first half, Group A, and a second half, Group B, the average period of treatment for the former being 41 days, and for the latter 164 days. The last case of all, not included in either group, is that of a man who had recovered from an attack of cerebro-spinal meningitis, and on being swabbed was found to be a carrier. Table II deals with the control or "normal" cases. At the end of each table will be found the average figure for each factor.

In the following analysis and discussion of these results each factor will be taken separately.

1. *Pyorrhoea Alveolaris.*

For normals the index average is 0.8, and for carriers it is the same, taking the average of the two groups together. But for Group A it is 0.6 and for Group B 1.1, or nearly twice as high. Possibly, therefore, pyorrhoea, while not of importance in the genesis of carriers, may, by the maintenance of a condition of sepsis in the upper respiratory passages, contribute to the prolongation of the carrier period.

2. *Adenoids.*

Normals show 1.1, and all carriers 1.7. In other words, the average adenoid mass in the carriers is 50 per cent. larger than in the normals, suggesting that adenoids, as would be expected, may be one of the factors which aid in the creation of carriers. The figure for Group A (1.8) is practically identical with that for Group B (1.6), which may indicate that once a carrier has been created the presence of adenoids does not materially tend to prolong his period of treatment, the antiseptic presumably finding little difficulty in penetrating their interstices, which, therefore, afford but little protection to the meningococci.

3. *Firm Mucous Contact.*

The degree in which this condition was present was estimated by anterior rhinoscopy, and there are naturally many fallacies. In certain cases, for instance, the septum is so angulated that it is not possible to see one middle turbinal at all, while it fairly frequently happens that the middle turbinal of one or both sides is partly obscured. Further, it is not easy to estimate the degree to which the middle turbinal may be pressing against the outer wall of the nose and so interfere with the free drainage of the sinuses. However, the figures represent the best estimate which could be made, and the errors tend to eliminate themselves over a sufficiently long series of cases.

High degrees of contact are frequently accompanied by thickening and deformity of the septum. This condition, enlargement, or deformity of the middle turbinals, and to a less extent narrowness of the nasal cavities, along with perhaps some oedema of the mucosa, are the main factors in producing what has been called in this report "firm mucous contact." Though the inward pressure—that is, against the septum—is the more easy to estimate, it is

TABLE I.—*Carriers: Group A.*

Age.	Teeth.	Pyorrhoea.	Adenoids.	Tonsils.	Mucous Contact.	Sinuses (Antra). R.	Sinuses (Antra). L.	Remarks.	Duration of Carrier Period. Days.
23	Good	0	2	0	1	0	0		11
20	Good	0	1	0	0	0	0		14
37	Good	0	1	0	2	0	0		14
31	Poor	1	2	1	3	0	3		16
49	Fair	2	1	0	1	0	0	Deep pharynx	17
54	Fair	3	0	0	4	1	0	Marked right septal deviation	18
18	Fair	0	2	2	2	0	0	Right septal deviation	20
18	Fair	1	3	1	2	3	0	Thickened septum	20
19	Good	0	3	1	2	0	0		26
31	Fair	1	1	0	0	0	0	Muco-pus in post-nasal space	33
19	Good	0	2	4	1	0	4		34
19	Poor	1	4	4	1	4	3	Mouth breather	45
18	Perfect	0	3	3	2	0	0	Left middle turbinal and septum in contact	45
40	Poor	1	0	3	4	0	0	Pronounced septal deviation to right	50
33	Fair	0	0	0	4	0	0	Both middle turbinals in contact with septum	52
20	Fair	1	4	2	2	2	0	Right middle turbinal and septal contact	56
22	Poor	2	0	2	0	1	0	Atrophic rhinitis. Pus in post-nasal space	58
23	Fair	0	4	1	0	0	0		59
26	Poor	0	3	2	2	4	0		67
22	Poor	0	3	2	4	0	0	Firm contact between septum and right middle turbinal	69
18	Good	0	3	1	5	3	4	Septum thickened. All turbinals in contact with it	71
22	Fair	0	0	1	3	0	0	Septum in contact with left middle turbinal	71
27	Fair	0	0	2	2	0	0		74
Average:						0.8	0.6		
26.5	—	0.6	1.8	1.4	2.0	0.7			41

TABLE I (*contd.*).—*Carriers: Group B.*

Age.	Teeth.	Pyorrhoea.	Adenoids.	Tonsils.	Mucous Contact.	Sinuses (Antra). R.	Sinuses (Antra). L.	Remarks.	Duration of Carrier Period.
									Days.
38	Poor	0	0	2	3	5	4		78
27	Fair	3	0	1	5	3	0	Septal deviation to right	83
28	Fair	3	2	2	3	4	4	Very narrow nasal cavities	85
29	Fair	0	3	0	5	0	0	Almost complete right-sided obstruction	91
29	Good	0	2	1	5	3	3	Very thick deformed septum	91
39	Poor	5	0	0	4	4	5	Both middle turbinals in contact with septum	97
20	Fair	1	0	1	0	2	2		109
31	Good	1	2	0	1	0	0		120
32	Very Poor	0	2	4	0	1	5	Septum irregular	126
33	Fair	0	0	1	5	0	0	Septum broken (old boxing accident)	128
19	Good	0	4	1	1	0	0		150
39	Poor	0	3	1	4	2	0	Traumatic deformity of septum	153
19	Good	4	5	0	4	0	0	All turbinal bones in contact with septum	158
31	Poor	0	1	0	4	4	4	Both middle turbinals in contact with thickened septum	166
23	Good	0	0	0	5	0	4	Septum thickened and deviated to right	169
18	Fair	1	1	5	1	0	0	Tonsils very large and septic	173
39	Fair	3	1	0	1	0	0	Mucus in post-nasal space	176
18	Good	0	2	4	5	2	1	Both middle turbinals in contact with very thick septum	194
34	Poor	3	3	1	3	1	1	Posterior end of right inferior turbinal enlarged	250
21	Good	0	3	4	3	0	0		254
26	Poor	0	1	1	3	1	1	Septum deflected. Left middle turbinal enlarged	262
28	Poor	1	0	2	1	3	2	Readmitted seven weeks later, but cleared quickly	313
18	Good	0	1	0	5	1	0	Both middle turbinals in contact with irregular septum	348
Average:						1.7	1.6		
26.8	—	1.1	1.6	1.3	3 1	1.6			164
Average for Groups A and B:									
25.6	—	0.8	1.7	1 35	2.5	1.2			103
19	Good	1	1	0	5	4	4	Isolated as a carrier after recovery	Long

TABLE II.—"*Normals.*"

Age.	Teeth.	Pyorrhoea.	Tonsils.	Adenoids.	Mucous Contact.	Sinuses (Antra). R.	Sinuses (Antra). L.	Remarks.
33	Good	3	2	1	0	1	1	
19	Poor	2	0	1	4	0	0	Both middle turbinals and right inferior turbinal in septal contact.
22	Good	0	1	1	1	0	0	
24	Good	0	0	2	1	0	0	
24	Fair	1	1	0	0	0	0	
19	Good	0	1	3	0	2	2	
25	Good	1	2	3	3	2	2	Left middle turbinal in contact with septum deviated to left.
19	Good	0	1	0	0	0	1	
20	Good	0	3	2	2	0	[5]	Bullet wound, left antrum.
23	Fair	0	2	0	1	1	0	
21	Good	0	0	3	1	0	4	
21	Good	1	3	0	3	3	3	
25	Good	0	0	1	3	3	2	
22	Poor	3	0	3	2	4	4	
21	Good	0	2	3	4	4	4	Irregular deviated septum.
34	Good	1	0	1	3	3	1	
26	Poor	1	2	1	0	3	3	
20	Fair	1	0	0	4	0	0	Both middle turbinals in contact with septum.
36	Fair	1	2	0	0	0	0	
21	Fair	1	0	0	0	0	0	
41	Poor	3	0	0	2	4	3	Right middle turbinal in contact with septum.
24	Good	0	3	3	1	4	4	
25	Fair	3	2	1	3	3	0	Septum deviated and in contact with right middle and inferior turbinal.
36	Fair	2	1	0	0	4	4	
23	Fair	0	3	0	2	0	0	
19	Good	0	0	3	3	3	0	Right middle turbinal in contact with septum.
27	Good	0	1	1	0	0	0	
20	Perfect	0	0	2	0	0	1	
26	Fair	1	2	1	1	4	4	Chronic rhinitis.
28	Fair	0	1	1	0	4	4	Irregular septum; no contact seen.
29	Fair	0	0	1	0	0	0	
22	Perfect	0	2	1	4	3	2	Both middle turbinals and septum in contact.
40	Poor	3	3	0	3	3	1	Irregular septum in contact with right middle turbinal.
27	Fair	1	1	1	0	4	4	
20	Fair	0	3	0	0	4	0	
24	Fair	1	3	0	1	0	0	Man in same hut died of cerebro-spinal fever. Swabbed three times (all negative).
27	Good	1	0	0	4	2	2	Both middle turbinals in contact with septum.
39	Bad	4	0	0	1	4	0	
25	Fair	1	1	1	0	1	0	
20	Perfect	0	1	1	1	0	0	
25	Perfect	1	0	2	1	1	0	
27	Good	0	1	2	3	3	1	Right middle turbinal in firm contact with septum.
24	Fair	1	2	0	3	0	0	Left middle turbinal i firm contact with septum.
19	Good	0	1	1	2	4	0	
20	Good	0	1	2	2	0	1	
20	Fair	0	1	1	3	2	2	
20	Poor	1	3	2	0	1	1	
Average:						1.8	1.3	
24.5	—	0.8	1.2	1 1	1.5	1.5		

probably the outward rather than the inward pressure of the middle turbinal which aids most in prolonging the carrier period. For the outward surface of this bone screens the great majority of the ostia of the accessory sinuses, and the sinuses are probably very important depôts for the concealment of meningococci. From them the organisms can sally forth into the neighbouring parts of the nose, whereas while dwelling in their seclusion they are comparatively immune from the attention of antiseptics, which, when they do gain the interior of a really obstructed sinus, are probably too diluted to produce much effect. If the organisms really do find a home in the sinuses, one would expect them to be discovered in the greatest numbers in the upper regions of the nose and nasopharynx, an expectation in accordance with the known facts. Further, one would expect the index for firm contact to be higher in carriers than normals, and especially high in the more stubborn carriers. The figures actually do show this to be the case. They are:

Normals	1.5
All carriers	2.5
Group A	2.0
Group B	3.1

The highest index, 5, is attained only once in Group A, but no less than seven times in Group B. The fact that in the latter group there are several low indices may be due in these cases to a combination of light internal or septal contact with firm external contact.

4. *Translucency of the Maxillary Antra.*

For the carriers this was observed in a dark room in circumstances identical for all, so that the two groups can be compared without fallacy. But in the case of the control series, except for the last eleven patients, an ordinary imperfectly darkened room was used, with a cloth over the heads of observer and patient. The observer's eye was therefore less perfectly dark-adapted, and the antra in

consequence probably appeared less translucent than they would in an absolutely dark room, so that the index may be slightly too high. This does not apply to the last eleven cases on the list, but as the first eleven (to whom it does apply) also show a low index, the average error is probably hardly appreciable.

The figures obtained are as follows:

	R. Antrum.	L. Antrum.	Average. R. and L.
Normals ...	... 1.8	1.3	1.5
Carriers ...	... 1.2	1.1	1.2
Group A	... 0.8	0.6	0.7
Group B	... 1.7	1.6	1.6

The two striking features of these figures are:

(*a*) The average for the forty-six carriers as a whole is 1.2, which is less than the "normals'" average—1.5.

(*b*) There is a very marked difference between Group A with 0.7 and Group B with 1.6.

The question to be discussed is the significance which can be attached to these results. It is a fair assumption that the cases showing a high antral index include among them those cases in which there is antral sepsis, and in which the lining membrane is thickened, with or without pus or muco-pus. That is to say, in a series with a high antral index, the average amount of antral sepsis would be greater than in a series with a lower index. So that to some extent the index for a sufficiently large number of cases must reflect the amount of antral sepsis encountered. Further, since in many cases it is well known that the antrum may act as a reservoir for the discharges from septic frontal and ethmoidal sinuses even when not itself infected, and also that in a fair percentage of cases where the antrum is septic the other sinuses, some or all of them, are septic too, we may assume, again in a sufficiently large number of cases, that a high antral index would be indicative of a higher average amount of sepsis in the other sinuses than would a lower one. In other words, in a series of cases sufficiently long, the curves of the antral index and of the degree of sepsis present in the accessory sinuses as a whole may be assumed to move together.

The present series—and this cannot be too strongly insisted upon—is, unfortunately, too short to allow any certain conclusions to be based on it, but the figures are nevertheless suggestive, and as such they may be examined. Taking first the significance of point (*a*)—that the index for carriers as a whole is actually lower than that for the normals—this may mean that a nose whose accessory sinuses have already been effectively occupied by the usual organisms of nasal sepsis is unfriendly to the meningococcus and resists its incursion more successfully than would an uninfected one. And inasmuch as it is already known that streptococci, for instance, are inimical to meningococci, this conclusion does not seem unreasonable. Taking next the second point (*b*)—that the index for the more obstinate Group B is more than twice that for the more tractable Group A—it may perhaps be inferred with fairness that, once the meningococcus has succeeded in establishing itself in coexistence with the previous sole possessors, it then shares in the benefits of the umbrella which has enabled the septic organisms themselves to live on in the sinuses. They are sheltered by bad drainage from the sinuses into the nose and so forth—by the factors, that is, which have already been discussed under the head of "firm mucous contact"; and, becoming correspondingly difficult to evict, the carrier in question strongly resists treatment. In other words, a high antral index implies conditions unfavourable to the genesis of a carrier, but which tend to make him obstinate in his refusal to clear up, once his "carrying" has been established,

5. *Tonsils.*

The indices for normals and for Groups A and B are so similar that probably the condition of the tonsils is not of much importance in determining the origin or resistance to treatment of carriers, and will not further be considered. But in any future work done separate indices will be allotted for enlargement and for sepsis.

Conclusions.

The conclusions suggested by the above analysis may be summarized thus:

1. Factors favouring the genesis of carriers—
   (*a*) The presence of adenoids.
   (*b*) The conditions implied in the term "firm mucous contact."
2. Factors unfavourable to the genesis of carriers—
   Already existing septic infection of the sinuses.
3. Factors favouring resistance to treatment—
   (*a*) Pyorrhoea alveolaris.
   (*b*) Firm mucous contact.
   (*c*) Already existing septic infection of the sinuses.

These conclusions are based on so short a series of cases that they must be accepted with the greatest reserve, and may or may not be confirmed by more extended observations. Indeed, they are little more than very suggestive indications, but even so they offer the strongest inducement for a similar investigation on, say, three to five hundred carriers. *In general, it may be said that they point in the direction of the accessory sinuses as being the main seat of meningococcus infection in carriers,* these cavities being often difficult to disinfect, and therefore able continually to reinfect the upper and more secluded portions of the nasopharynx, even though these may be swept clean periodically by the antiseptic used. Moreover, the lymphatics surrounding the olfactory nerves, which are in close relation to the ethmoidal cells, may possibly provide an easy avenue for infection of the meninges.

As to any practical application of this work: already some assistance has been rendered in the matter of treatment. Captain Glover in his recent report says, among other kind references: "This" (some of the above observations on mucous contact) "led to a valuable suggestion . . . namely, that the flavine or other spray treatment should be preceded at a fixed time by a spray of adrenalin chloride, 1 in 6,000, in normal saline. The effect of this reagent is, by shrinking up the mucosa, to increase the airway, dilate the ostia of the accessory sinuses, and allow of a much freer access of the antiseptic spray to all parts of the nose. The chart showing chloramine irrigation shows also the material improvement in results shown by this method over the plain flavine method. It is apparently the best method of treating chronic carriers tried this year in the laboratory. . . ."

It may eventually be possible, as the result of a routine examination similar to the one described in this report, to predict the degree of obstinacy or otherwise, with a rough approximation to accuracy, which any given carrier will exhibit.

Later on I hope to have the opportunity, with Captain Glover, to investigate the points of densest population of the meningococcus in the nose and nasopharynx, and also during *post-mortem* examinations of fatal cases of cerebro-spinal meningitis to take swabs from, and specimens of, the mucous membrane of the sinuses, in order to test the importance of these structures which has been suggested above.

It would be well also to examine as many men as possible who have recovered from the disease. One such appears at the end of Table I, and it is interesting to note that his contact index is 5, and his antral index is 4 for each side. He carried for a long time after his recovery, but I have not been able to ascertain the exact period. He is not included in any of the averages previously discussed.

Further, I should very much like to have the opportunity of seeing as many men as possible who, having been in actual contact with cerebro-spinal fever, have been subsequently found not to be carriers. These men should give valuable indications of those conditions which are unfavourable to the genesis of carriers.

Just as an obstinate carrier of the diphtheria bacillus may often be made to clear up quickly as the result of the removal of his tonsils, so it may be that some simple surgical procedure, such as the removal of the anterior half of the middle turbinals, by throwing open the ostia of the majority of the accessory sinuses, might lead to a shortening of the period of isolation for meningococcus carriers.

One case in the table of normals was in a hut in which a man died of the disease, and was, after three swabs, found to give a negative result in each. His contact index is 1 and his antral index is 0 for each side.

In these various ways a mass of data could be obtained which, being collected by a single observer, should be free from differences of personal equation, and which on analysis should yield really valuable and well founded information.

TWO CASES OF VULVITIS CAUSED BY THE ACCUMULATED SECRETION OF TYSON'S GLANDS.

By JOHN D. MALCOLM, F.R.C.S.EDIN.

CHRONIC inflammation of the vulva is often difficult to cure and a source of much distress from the persistent itching. Local cleanliness is recommended in all the textbooks as an essential of treatment, but an accumulation of secretions under the prepuce of the clitoris is not generally mentioned as a special source of trouble. The following case shows that an irritation there may be easily overlooked:

CASE I.

I removed the prolapsed and gangrenous portion of a urethra which stood out quite half an inch from the meatus. The patient's age was 75. She had every advantage of circumstances for keeping the parts clean, and she was scrupulously careful in this respect in all ordinary ways. A good nurse was engaged, and during the operation I did not notice anything that suggested a need for particular examination of the prepuce. The gangrene seemed to account for the vulvitis. Ten days later the urethra was healing well though slowly, but the patient complained much of itching, which was a long-standing trouble, and on lifting up the prepuce a layer of stale secretion was discovered, under which the parts were obviously irritated. This patient's medical attendant writes that "after two or three cleansings of the prepuce the irritation, which had been a cause of constant suffering, entirely disappeared." He adds that he has found a similar condition and treated it with success in two other cases.

CASE II.

A healthy-looking, well-cared-for country child, 2½ years old, was sent to the Samaritan Free Hospital on account of a vaginal discharge which was said to be at times so offensive that all who came near were conscious of it. No proper examination was possible until an anaesthetic was given. Then it was seen that the clitoris was completely covered by its prepuce, the edges of which were adherent back to the junction of the labia minora. The whole vulva was inflamed. A knife was required to expose the clitoris, which was only partially adherent. Under the deepest part of the prepuce the secretion of Tyson's glands was found in small inspissated granules exactly as in a case of persistent phimosis in the male. These granules were big enough to be seen and felt through the skin. The offensive discharge ceased very quickly after the parts were exposed and cleaned.

These cases have led me to examine carefully the fold of skin over the clitoris as occasion offers in the course of operations. This fold must, in some cases, be lifted from its position before its under surface can be fully seen, and a white sticky secretion may be found there, although there are no signs of irritation. Occasionally it is quite difficult to clean the parts even under an anaesthetic, because of the tight fitting of the prepuce over the end of the clitoris. It would appear therefore to be worth while, in all cases of intractable vulvitis, to make a thorough examination of the under surface of the prepuce, with the aid of an anaesthetic if necessary.

THE VALUE OF ARTIFICIAL PNEUMOTHORAX IN THE ARREST AND PREVENTION OF HAEMOPTYSIS IN PULMONARY TUBERCULOSIS.

BY

Z. P. FERNANDEZ, B.A., M.B., CH.B.LEEDS,

RESIDENT TUBERCULOSIS OFFICER, LEEDS CITY SEACROFT SANATORIUM.

THE article in the BRITISH MEDICAL JOURNAL of March 16th, 1918, on the collapse treatment of pulmonary tuberculosis has induced me to record the following consecutive cases treated by me during the last year in which severe and persistent haemoptysis was arrested, and in all but one, in whom the treatment was not continued, so far prevented. All the patients believe in the efficacy of the treatment, and the majority willingly continue it after leaving the sanatorium; they come in the morning for an induction, and by the evening feel fit to get home.

The cases recorded are only those of severe and persistent haemorrhage in which the usual rest, dietetic, purgative, and time-honoured morphine injections, calcium lactate in large dose, and terebene had been of little value.

CASE I.

Labourer, aged 52. Active signs in right upper lobe. Tubercle bacilli in the sputum. Haemoptysis 2 to 3 oz. daily for a month. The first induction with 300 c.cm. of oxygen reduced the amount, and the second with 600 c.cm. of oxygen, four days after, completely arrested the haemorrhage. A third induction of 600 c.cm. was given a week later. The sputum, after a temporary rise the day after the induction, fell to 4 oz. daily, then to ¼ oz., and later to less. For the last six months he has had no haemorrhage, and when I saw him last he was working with very little discomfort.

CASE II.

A soldier with active disease of the right lung and arrested disease of the left. He had had intractable haemoptysis, varying from 6 to 10 oz., for the last two years. He came under my care early in 1918 with haemoptysis nearly a pint a day for a week. I gave him an induction of 550 c.cm. oxygen, but owing to fibrosis there was some difficulty, and the operation took nearly an hour. The next day the amount of haemoptysis was considerably lessened. On the third and fifth days I gave him an induction of 600 c.cm. of oxygen with very little difficulty, and the bleeding was completely arrested. He had three more inductions, varying from 1,200 to 1,800 c.cm., before being discharged, and for the last five months has been free from haemoptysis.

CASE III.

In a nursing sister with severe haemoptysis and active disease of the left lung, the haemorrhage was arrested after two inductions of 600 c.cm. each at the interval of a week. She has had over eighteen inductions during the last ten months, and her general condition has been considerably improved. She has had no further haemorrhage.

CASE IV.

A girl typist, with active disease of the left lung, with a basal cavity, and characteristic amphoric breathing and slight involvement of the right lung, had had occasional haemoptysis of 5 to 10 oz. for a month, and the sputum was always stained. On admission she was very ill, and the prognosis was not good. Treatment of artificial pneumothorax was proposed, but the patient was reluctant to consent. The staining of the sputum continued, and eventually she asked to be submitted to the treatment. After two inductions of 500 c.cm. of oxygen every other day the haemorrhage was arrested. She had four more inductions, from 800 to 1,200 c.cm. of air and oxygen, with the result that the cavity signs disappeared, the moist signs became dry, and she gained over a stone in weight. She was discharged fit for light work in four months, and she has had no further haemorrhage.

CASE V.

This was a sturdy man who had profuse haemorrhage and tubercle bacilli in the sputum. He was admitted almost collapsed. There were very few signs in the left lung. Four inductions of 600 c.cm. of oxygen and air in a week were followed by complete arrest of the haemorrhage. He is still going on with the treatment and has been free from haemorrhage.

CASE VI.

A girl with fibrotic disease and continuous bleeding and tubercle bacilli in the sputum, had bilateral disease. On two occasions left artificial pneumothorax was tried, but the bleeding, though lessened, was not arrested; the right side was then tried with 600 c.cm. of oxygen on four occasions; complete arrest of the haemorrhage ensued.

CASE VII.

In a bricklayer with persistent haemoptysis of three months' duration and bilateral disease induction on the right side was tried twice (200 c.cm. each) with some benefit, and as the haemorrhage persisted I tried induction on the left side with 200 c.cm., which completely arrested the bleeding. This was repeated on two occasions (500 c.cm. each). He has been doing well ever since.

CASE VIII.

A foreign university student with profuse haemorrhage, who had over twelve inductions, varying from 600 to 1,200 c.cm., of air and oxygen. After three months without haemorrhage, he discontinued the treatment, but returned recently with a haemorrhage which has now been arrested.

In the three other cases of less severity the bleeding was arrested after one induction, but the treatment has been repeated. I have also given over 300 inductions in cases of unilateral disintegrative type and in a few bilateral cases with marked benefit. I have been fortunate enough to have no accident or complication whatever in the mode of treatment.

An Address
ON
THE FUTURE OF THE MEDICAL PROFESSION.

BEING THE CONCLUDING PART OF THE CAVENDISH LECTURE, DELIVERED BEFORE THE WEST LONDON MEDICO-CHIRURGICAL SOCIETY ON JULY 11TH,

BY

MAJOR-GENERAL SIR BERTRAND DAWSON, G.C.V.O., C.B., M.D., F.R.C.P.,
ARMY MEDICAL SERVICE; PHYSICIAN IN ORDINARY TO H.M. THE KING; PHYSICIAN TO THE LONDON HOSPITAL.

PART II.*

TEACHING HOSPITALS.

ALL teaching hospitals must henceforth be guarded and retained for their special objects. Their prime functions are education and research. They set the standard for the rest of the country. It should not be the primary function of a teaching hospital to serve the clinical needs of the district in which it is situated. It should gather its patients from everywhere, and in addition to its own district it will no doubt be fed from hospitals and clinics far and wide, to the advantage of the patients and doctors and the furtherance of knowledge.

The local or central hospital belongs to its town or its county. The teaching hospital belongs to the nation. The former should be under the new health authority; the latter should be affiliated to a university or the Ministry of Education.

Attached to the teaching hospitals should be various institutes where the domains of medicine and social service will meet. As the diagram shows, they would represent such subjects as maternity care, infant welfare, school hygiene, trade and occupational diseases, tuberculosis, venereal diseases, etc., and be directed by distinguished specialists, who would be on the staff of the hospital.

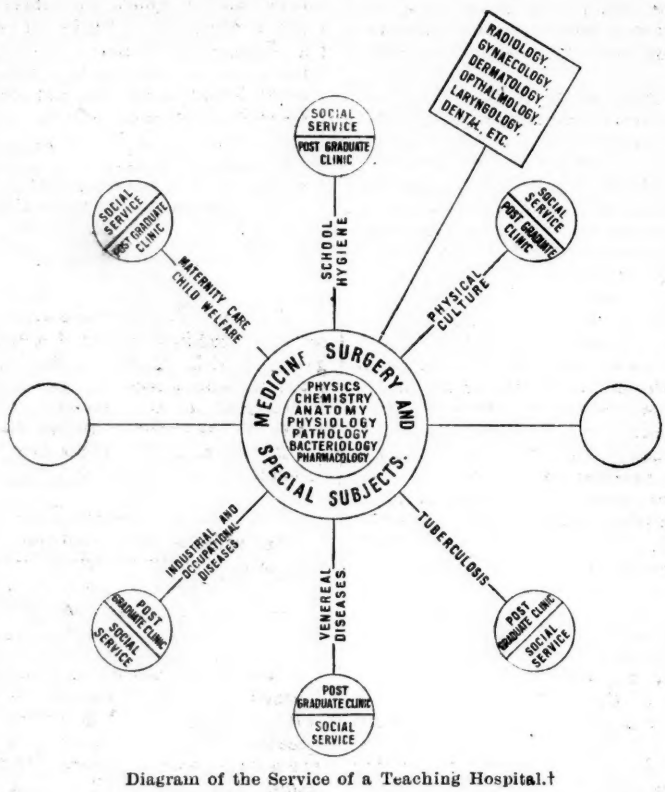

Diagram of the Service of a Teaching Hospital.†

These institutes, models of their kind, would give post-graduate training to doctors and instruction to nurses and social workers. They would have the advantage of the educational facilities and influence of the teaching hospital, which would be the link between them and the university; and in their turn would link the hospital with social service and the needs of industrial life. Further, by these institutes doctors would gain the knowledge of preventive medicine they now lack; would appreciate the claims of social service, and prepare themselves for taking their rightful places in the communities they are destined to serve. As has been stated above, no doctor would be eligible for a post in a health clinic without evidence of special study and knowledge.

The Staff of a Teaching Hospital.

Elections to the staff of a teaching hospital should not be exclusively in the hands either of the staff or the administration of that hospital; an academic council, carefully selected by the university, should also have powers of recommendation; and to avoid the dangers of in-breeding the claims of all suitable candidates should be considered. The size of the staff should be less rigid; it is not advantageous that the number of physicians and surgeons should always conform to a fixed standard; because a physician or surgeon resigns it should not be considered a necessity forthwith to fill his vacancy. The distribution of beds into a fixed number for each member of the staff should cease, and when a surgeon or physician resigns the exact number of beds allotted to him should not of necessity descend to his successor. Though all members of the staff should have beds they should only begin with a few; then if there grew up a man of promise and reputation, his clinic would be developed and his beds increased. In this way a clinic would grow up round a man instead of a man being sought out to inherit a clinic.

It cannot be expected that one hospital should at the same time possess all the excellences. Let it develop those departments which happen to correspond to the talents of its existing staff. The junior members of a staff are of necessity men of promise rather than of fruition; from them will emerge one or more of commanding talents; let such be given increasing opportunity and equipment, and there will grow up a great department or clinic centred round *the* man. A great teaching hospital would then not only have beds for general medicine and surgery, but would develop special branches; further than this, there should always be beds available for collective investigation of problems which arise from time to time. Now, investigation is too often started by a single individual who is only competent to undertake one aspect of it, whereas for fruitful results a carefully selected team is needed. An encouraging example of collective research is afforded by the work recently done on trench fever by medical officers of the British and American armies.

To be more definite, I should roughly allocate one-half of the beds to provide each member of the staff with a fixed minimum; the remaining half would be available to strengthen clinics above referred to and for collective investigation. Thus teaching, progress, and research would all be provided for. By such a plan power would go to the most efficient, and the intellectual life of the hospital would be led and inspired by a few men of outstanding abilities.

It may be urged, Why not, instead of this oligarchy, place the whole of medicine under one professor, and likewise surgery under another, and so on, and give these complete control? The answer is, that would be a retrograde step. Medicine and surgery have become subjects each too big to be compassed by the brain of one man. A man placed at the head of so large a subject would need to have encyclopaedic knowledge, great breadth of outlook, and exceptional powers of leadership. I do not say that such a man is never to be found, but he is rare; I know of no such man in this country. The real danger under such single rule is that thought would be cramped and stereotyped into one pattern, there would be none of that free play of mind which results from the intercourse and camaraderie of equal colleagues. If the

* Part I was published in the JOURNAL of July 13th, 1918, p. 23.
† For this diagram I am indebted to Major Pinchard, R.A.F.

single head happened to be unsuitable the whole department might become sterile for years at a time. Further than that, if he happened to be narrow and selfish, an evil would arise, which is by no means an uncommon result of this system in Germany, whereby junior men of talent are held back and exploited, and receive neither opportunity nor credit for bringing forth their own work.

Terms of Service in Teaching Hospitals.

The men on teaching hospitals have chosen an academic career, and they must pursue it. This means sacrifices as well as compensations. Under the present system they cannot devote enough time to their hospitals, and in the hospitals their energies are too much absorbed by routine duties. Many a promising man has been spoilt by the combined effects of unpaid hospital routine and the early struggles for consulting practice. Why not, then, it may be urged, a whole-time service for teaching hospitals under which the members of the staff would receive the whole of their incomes by salary, private practice being forbidden? The reasons are these: An exclusively whole-time service would produce a narrow caste of academic men, who would be aloof from the problems and difficulties presented by disease in the world of action, and would drift too much into esoteric paths. It must never be forgotten that disease does not possess constant features, but varies in manifestations according to its environment.

How are general practitioners to be trained for their work by men who are themselves wholly ignorant of the problems and conditions of disease in the world of action the practitioner will have to meet? It must never be forgotten that we exist not only to pursue knowledge, but to show the application of that knowledge in the world of action. Further, it would surely be unwise to eliminate entirely the unconscious stimulus to effort which the earning of professional income affords.

But though these reasons are, I think, conclusive against a universal application of the whole-time principle to teaching hospitals, I think a limited application of it is sound. For the first five years after his appointment every member of the staff should be a whole-time officer and forbidden private practice; he should either live at or in close proximity to his hospital, and he should be paid a salary which would be adequate for him to live comfortably, though not in an expensive professional quarter. During those five years the junior would, with singleness of purpose, apply himself to training, teaching, and research; he would discover his bent, and would be able to make manifest his worth. He would be saved from that exhausting struggle after scratch fees which a man at the start and without reputation has to submit to, and which is apt to paralyse his academic activities. For the succeeding ten years a member of the teaching staff should give half his time to the service.

It may be that members of the staff will arise whose gifts and tastes are entirely academic, and who may not possess the aptitude for work in the outside world, whether on the curative or social service sides of medicine. If that were so, by all means let facilities be provided for such men to remain whole-time workers at a salary. I think it is probable that one or two such whole-time workers would strengthen and keep balanced the staff of a teaching hospital.

As the habit of institutional treatment spreads in the community, which it assuredly will, consultants will more and more focus their private work in a single institution, with the result that their time will be economized and their earning capacity relatively increased. This will compensate for the larger demand of the hospital on their time.

In a new city no doubt a private clinic could be built in close proximity to a teaching hospital, but in a long-established city like London this might be impossible for obvious reasons. The increasing demand for institutional treatment by payment, because of its greater efficiency, may be seen in every morning's post-bag of a big teaching hospital.

To avoid staleness and parochialism members of the staff should periodically be sent away for a period of from three to six months on tours of study.

The old-fashioned line of demarcation between the work of the physician and surgeon should cease. Half of their beds should be common to both of them, corresponding to the idea that a large number of diseases have both medical and surgical aspects. Indeed, in many branches the surgeon and physician would be the leaders of a team of workers.

Radiographers and laboratory workers should be brought into closer contact with the wards. The day has come when each member of the staff should have attached to him, besides his resident officer, two or more clinical assistants, the number varying with his work. These would be men who have distinguished themselves as residents in some teaching hospital; they would be whole-time workers, devoting themselves to work in their chiefs' wards, to teaching and research, care being taken that at least one-third of their time would be free for study and research work of their own.

As regards salaries for hospital services, these should be adequate, but not lavish; their amounts should be guided by the amount of time and energy each member of the staff gives to the hospital, and by the consideration that junior men need more help in proportion than senior men.

State Aid Essential.

Is it not obvious that no teaching hospital could provide the equipment and staff necessary to maintain such a service at full efficiency unless it were helped by endowment or State aid? State aid on a small scale is in being; the Education Ministry gives grants for students and nurses, the Local Government Board gives grants to special departments like venereal clinics, and the Medical Research Committee assists research. No doubt, too, the Health Ministry, if formed, would subsidize health clinics. Such a policy of State subvention has the merit of being elastic, and is compatible with the continuance of voluntary support combined with adequate central control. On the other hand, some of the great voluntary funds, like King Edward's Hospital Fund, maintain that narrow outlook which cramps the progress of medicine, actually forbidding that any part of their grants should be expended on investigation. The money voted by them may be only spent on the immediate needs of actual patients, but an investigation which might in the future help thousands of patients cannot receive their aid. Teaching and research in England are still starved. In European countries the State endows them; across the Atlantic either the State or the far-sighted millionaire endows them; here from neither one source nor the other is there adequate help.

Evolution, not Revolution.

The scheme thus outlined involves change but not upheaval. While modifying methods, it upholds the ideals of English medicine—the essential principle that a student should be taught his profession in the wards by personal contact with the sick would be preserved; thus he learns disease not only from what he is told but by what he sees. He learns to observe, to inquire, to understand; he is trained not only in knowledge but in sympathy; he gains not only judgement but insight; he early faces one of the greatest difficulties—namely, that the symptoms of disease are not constant in different individuals, nor have they the same value; above all, he trains his powers of intuition, without which he can never reach the best in clinical medicine.

Some well-meaning people, obsessed with the imagined perfection of all that is German, have wanted us to imitate the German methods of teaching medicine. The German system has fundamental defects. The students seldom come into responsible contact with the patients until they are nearly or actually qualified. They learn at a distance and secondhand in largely-attended clinics; not, as with us, in small numbers round the bedside, where as dresser or clerk each learns by actual observation, not only about the disease, but about the individual patient—in fact, *his* patient. We do not wish to imitate a system under which the patient is apt to be regarded as a piece of machinery, resulting too often in a callous disregard for the feelings and sufferings of the sick. We want intelligence, but we also want sympathy; we want efficiency, but we do not want it to be mechanical and soulless. It is an interesting reflection that two branches of treatment which, above all others, go to assuage suffering—namely, the art of nursing and the art of anaesthetics—are in their supreme efficiency coterminous with the English-speaking world. On the other hand, let it be freely admitted that for post-graduate work and for certain specialities the teaching is

better organized in Germany than it is here. Those defects we can and must remedy, but without sacrificing the foundations of our own better system.

Post-Graduate Teaching.

This is an appropriate place to refer briefly to the need for organization of post-graduate study. Every encouragement should be afforded for doctors to seek periodically knowledge and inspiration in the schools, and during such "study leave" their salaries should be continued. The war will increase the importance of the question, because thousands of doctors from the English Dominions and the United States, who previously visited Germany and Austria, will now turn towards Great Britain and her European Allies. Likewise we in this country will cross the Atlantic in increasing numbers, to our own great advantage. One looks forward to a comprehensive scheme of post-graduate study co-ordinated with similar schemes in allied countries whereby we shall widen our mental horizon and constantly extend our knowledge.

Early Diagnosis: The Beginnings of Disease.

Reverting now to the larger question, it will be useful briefly to consider the organization we have been discussing from the standpoint of early diagnosis.

Early diagnosis is of supreme interest alike for the individual and the community, and the more early the diagnosis the more preventive and successful in character becomes the treatment; and, one step further, the more preventive the treatment the further it is removed from the bottle of medicine and the more it requires régime, method, and environment.

We are too much occupied with end results. We need to catch the diseased process sooner, when we can cure it effectively. Take Graves's disease, chronic Bright's disease, apoplexy. These are late expressions of diseased processes, far removed in time from their early beginnings, and it is these early beginnings we need to detect and treat. In short, we want the early diagnosis of the clinic followed by the preventive treatment of the sanatorium and the spa. This brings me to a cognate question—namely, that the problems of health at any epoch bear a relation to the existing conditions of life.

In our day the infections are being combated by improved sanitation, efficient isolation, and inoculation. Another group of diseases will be combated by healthy dwellings and workshops and the supply of good air and food.

The Strain of Modern Life.

But there is one thing which we cannot entirely prevent but must aim at counteracting, and that is "strain." You cannot increase the speed of life by motor cars, flying machines, telegraphs, and telephones, you cannot render all effort more intensive, without being faced with the problem of "strain." And, incidentally, if people are tuned up to too high a potential by work, they have a tendency to keep the same high potential in play, with the result that many forms of modern amusement produce as much strain and exhaustion as work. It would be interesting perhaps to consider some of the forms under which strain expresses itself.

In some it affects the arteries, and after years of its wearing effects actual illness comes on the scene in the form of aortic disease, arterio-sclerosis, cerebral haemorrhage. Or, again, it affects metabolism—the body chemistry deviates from virtue—the gouty state may show itself; it may be the blood pressure rises or renal function becomes inadequate, till finally disease comes in the form of gout or nephritis. Or, once more, strain may show itself in the plain muscular fibre of the body. This type is an interesting study. It is spare of frame, with a shallow abdomen, and often with a low blood pressure and cold extremities. In such subjects, with fatigue and strain, the plain muscular fibre gives out and the tone and motility of the hollow viscera fail; they thus get atonic dyspepsia, constipation, leading later to conditions like intestinal stasis, visceroptosis, and colitis. These people have abdomens which are ever responsive to their worries and cares—they feel abdominally, and for that reason seldom think imperially.

How often when a patient comes to you, it may be with headache, insomnia, cardiac irregularity, indigestion, abdominal pains, the bottom fact is "overstrain." He will not be well till the "strain" is treated. Medicine will not do that. Repose and regimen will.

True, you may help him by advice and medicine to bridge over a period while he is concluding work of critical importance. He may be enabled to postpone payment, but not to avoid it. If he tries to escape altogether, the overstrain of to-day becomes the disease of to-morrow, and the defect of function is succeeded by the defect of structure.

Sanatoriums and Spas.

These early deviations from health often need institutional treatment. The proper conception of sanatoriums and spas is as fields for early and preventive treatment.

It is not always necessary or possible for patients to suspend their active employment during treatment. On the outskirts of a big city there should be organized sanatorium treatment with the provision of a sanatorium, open-air bungalows, equipment for physical culture, baths, and other forms of hydrotherapy, games, and mental diversion—the whole organized and controlled by a highly trained staff of medical men.

Take as an example a man of forty pursuing a strenuous career: he is getting thick in the neck and bulky of frame, his chest expansion is declining, he easily becomes breathless, his blood pressure perhaps a little raised. He is a reasonably careful liver, and yet he is beginning to deteriorate. Now is the time to treat him. A prescription will not do it. There is no talisman for such a condition. He needs an ordered régime.

Take, again, the middle-aged subject with glycosuria, the victim of inveterate constipation, of chronic dyspepsia, or of recurrent neurasthenia. Innumerable examples will at once come to the minds of my audience. Such patients often have to continue their employment. It would often, indeed, be a medical advantage that they should. They would live for a time—say six weeks—in the institution, where each would eat his prescribed diet, pursue his exercises and games, take any baths or other treatment, and his mental surroundings would be restful and yet cheerful. Such treatment would often be compatible with, and indeed aided by, the pursuit of the usual employment. You would not only cure but you would also educate the patient. You would show him how to keep health and prevent disease. Think, too, what a missionary of health he would be to others. Imagine, also, what opportunities for research and study such an organization would afford into the beginnings of diseased processes.

I hear some of my critics say: What a Utopian dream! But everything of any good in the world has started with a dream. There is nothing impracticable in such a scheme; it would dislocate and disturb nothing—neither organization nor vested interests—because it breaks new ground. As far as realization goes it presents no insuperable difficulties. In any district it needs a far-sighted rich man and skilled advisers. Its underlying idea has been translated into effective action by the Army Medical Service under the stress of war in the shape of the convalescent camps in France and at home. What the army can do in war surely the civilians can do in peace. My profession cannot provide the rich men; it does not grow them, but it can and would provide the skilled advisers. Such a scheme needs careful planning and execution such as only *we* can give. It must be a medical organization throughout.

The spa is another application of the same idea except that it is on a larger scale, and the patients are resting from their ordinary avocations. The proper attributes of a spa are strangely misunderstood. The public visit the spa in the same spirit as Naaman visited Elisha in that they seek some magic short cut to health. I do not say that natural waters are not sometimes a useful adjunct to a spa, but they are quite subsidiary to its climate, its position, and the careful organization of its régime and environment, physical and mental. Testimony to the truth of this statement is that many of the most successful spas in Europe are those whose waters have no special qualities.

Amongst the features needed are the following: Good natural position—the whole resort planned so as to present the various treatments efficiently though pleasingly, and in an environment of beauty and repose; physical culture in

its various forms, with ample accommodation for games which, though remedial, will be attractive; baths and all forms of hydrotherapy; electrical treatments; music and other entertainments which rest and divert but do not excite the mind; suitable dietaries so arranged as to be attractive and not irksome. Natural waters though advantageous as an addition to are in no way a substitute for the foregoing necessities.

The running of such a spa presupposes guidance and control by the doctors acting in conjunction with a far-sighted municipality ready to spend adequate capital in laying out its resort on generous and comprehensive lines; it presupposes hotels designed and administered for those who are in search of health. I know of no resort in this country that fulfils these conditions, though there are many places possessing the natural advantages.

In one important resort an hotel was urged to at any rate provide a "cure" menu, and the reply was a *non possumus* for fear of damaging the prosperity of the local races. Spas need clinics, special hotels, and sanatoriums all working together for a common object. The need and opportunity are the greater because many of the Continental resorts will henceforth be closed to us.

Resorts fulfilling the conditions I have laid down for city sanatoriums have a great future of usefulness, and should be brought within the reach of all classes. They would repay their cost many times over from the increased health and robustness of those visiting them, and on account of their wide educational influence.

The Need for United Action.

I have now concluded my theme. Its length has extended beyond the usual limits of a lecture, but I hope this has been due to its many aspects, and not to prolixity on my part. I have tried to lay down what I conceive to be the right lines along which sound progress should proceed, avoiding attempts at detailed schemes, not because I underestimate difficulties, but because agreement on principles must precede elaboration of plans.

Attempts are being made by responsible bodies to guide the profession at this important period of its history along the paths of sound thinking and effective action. The British Medical Association, appreciating fully its responsibilities, has devoted much ability and infinite pains to thinking out a scheme of constitution for a Ministry of Health. The Royal Colleges of Physicians and Surgeons are forming a joint committee, which will be enlarged so as to make it especially representative of the academic side of medicine and surgery. This joint committee will in no way conflict with the work of the British Medical Association, but will rather view the problem from a somewhat different angle. The work of the two bodies will, I hope, be complementary the one to the other and lead at no distant date to co-operation and thus to that united action which must be the supreme object of us all.

Let me, in conclusion, express my conviction that never within memory has the profession been faced with issues so momentous as now—issues which involve the future welfare and prosperity of the nation and our own position in the ranks of its trusted leaders. We are at the parting of the ways. Do let it be the way of large and comprehensive outlook leading to strong and effective action.

While passing through this wilderness of struggle and suffering we are encouraged by the vision of a land of promise where a new and nobler era of human progress will dawn, and in the struggle to secure that this land of promise shall become a land of performance it will be the privilege of our profession to play a conspicuous and honoured part.

Postscript.—Expressions of opinion, suggestions, and criticisms will be welcomed by the author (32, Wimpole Street, W. 1).

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DISCUSSION.

At the conclusion of the lecture, Dr. RICE-OXLEY, President of the West London Medico-Chirurgical Society, who was in the chair, invited discussion.

Major HENRY DUTCH criticized Sir Bertrand Dawson's scheme for "garden suburb hospitals" as too Utopian. He drew a picture of a town of 80,000 people served by forty doctors, each of whom would want separate consulting-rooms at the hospital, and separate waiting-rooms as well, lest their respective patients should mix! He urged further that unless there was a union of medical men who would stick together in the same spirit of loyalty as a union of cabdrivers the voice of pioneers like Sir Bertrand Dawson would be a cry in the wildnerness.

Sir JOHN BROADBENT said that he believed that a complete state service would be the ruin of medicine, chiefly by the withdrawal of competitive stimulus. Therefore the so-called compromise which Sir Bertrand Dawson had brought forward had points of value. A drawback to his proposal for treatment centres was that, while it would be impossible to utilize every medical man in a district, a process of selection would give rise to grievances. Moreover, it would require little less than military discipline to compel all classes of patients to attend at a given centre at a fixed time. He felt that middle-class people with limited incomes were the least fortunate in the matter of medical provision, and he hoped that some arrangement might be made at state expense for this class of patient.

Dr. E. H. M. STANCOMB said that if the critics of a more widely extended public service had been with him lately in his capacity as an examiner on a recruiting medical board and had seen the large proportion of unfit, prematurely aged, and physically feeble with whom he had had to do, they would never have felt any more fear as to a possible lack of stimulus in a vast co-ordinated public service. The physical condition of a large proportion of the population would itself furnish the stimulus. He regarded it as necessary that the general practitioner should be thoroughly aware of the local public health conditions, particularly housing conditions, and he might serve with advantage on certain public bodies.

Major GORDON DILL said that the process of evolution in their profession had given place to a condition of impending revolution, chiefly as a result of two causes—the Insurance Acts and the war. They should be prepared for that revolution. The situation was full of possibility, and the dawn of a new era for the medical profession could not be long delayed.

Dr. G. E. HASLIP asked how Sir Bertrand Dawson was going to force these views on the profession and on the Government. He referred to the immense difficulty of moving in matters which involved administrative changes. If anything was to be done it was necessary to sound a trumpet and let Parliament know that one really meant business.

Sir ROBERT MORANT rather challenged the remarks of the last speaker, and said that the real necessity was not so much that Government departments should be energized but that medical men should take a much bigger part in affairs. He instanced the bill which was now rapidly slipping through, making whatever provision the local authorities pleased for nursing and expectant mothers. What voice had the medical profession raised in that matter? Perhaps many in that room were unaware of the measure or at least of its imminence. It was very necessary that the profession should be thinking of these things in a practical and constructive way.

Dr. F. G. LLOYD entered into a detailed comparison of the terms and conditions of public service and private practice; Dr. F. COKE (Ashford) dealt with certain matters from the country doctor's point of view; and Dr. A. E. RUSSELL regarded it as of the first importance to discover whether or not the profession was in favour of some sort of state control.

Sir BERTRAND DAWSON, in a brief reply, said that half the questions and criticisms were really answered in the full text of the lecture itself. His own scheme of hospitals was an evolution, not a revolution; he had never suggested that they should be put up all over the country, but a beginning might be made on a small scale, and development take place gradually. He knew that visits to the home would not be done away, but all the same an increasing number of people would want to go to hospitals

and clinics. With regard to Major Dutch's destructive criticism, that showed the kind of spirit which was the great obstacle to progress; on such lines the profession would find itself fifty years hence where it was to-day. It was evident that many things had got to alter, and the only question was whether the profession should lead or be dragged. It had been asked by what machinery the opinion of the profession could be elicited. The machinery was already available in the shape of the British Medical Association, whose members had only to make their feelings known. But he warned them that unless they united their forces and formulated their policies they would not be taken into account in the legislative changes which would vitally affect the profession.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

ACUTE INTESTINAL OBSTRUCTION DUE TO STRANGULATION THROUGH THE GREAT OMENTUM.

AMONGST the various causes of acute intestinal obstruction strangulation of a portion of bowel through an aperture in the great omentum is given as one, but not many cases are on record. The following case is an instance, and is an example also of an acute abdominal condition impossible to diagnose positively before opening the abdomen.

A man, aged 43, was brought to the King Edward VII Hospital, Cardiff, at about 9 p.m. on June 20th, 1918. He had been seized suddenly with acute pain over the upper part of the abdomen at about 1.10 p.m. the same day, about five minutes after his dinner. He referred the pain particularly to the left half of the epigastric region; it was so severe that he writhed with it and had to go to bed. He was sick soon after and had vomited several times before being brought to the hospital; the vomit was not very foul-smelling. His bowels had been moved as usual in the morning, but not since the attack. He was suffering from severe shock. The tongue was dry and coated; the pulse was 68, the respirations 30, and the temperature 97°. The abdomen was slightly distended, tympanitic in front and slightly dull in the loins; liver dullness was not diminished; the abdomen was rigid all over, but especially in the epigastric region, where it was almost board-like; the left half of the epigastrium was very tender. The patient stated that he used to suffer occasionally from discomfort, but not actual pain, after meals; he had never been jaundiced. From the history, the mode of onset, and the condition of the abdomen we diagnosed perforated gastric or duodenal ulcer, and operation was decided on.

Mr. J. W. Geary Grant, acting assistant surgeon to the hospital, operated at 10 p.m., and I assisted him. The patient was given a hypodermic injection of morphine gr. $\frac{1}{4}$ and atropine gr. $\frac{1}{100}$ prior to the operation, and a mixture of chloroform and ether (1 : 3), and also pure ether. An incision above the umbilicus was made in the middle line and the linea alba divided. The peritoneum, which was purplish and clearly contained blood, was opened and a large amount of blood-stained fluid escaped; this showed that the condition was not due to perforated gastric ulcer. Thrombosis of the superior mesenteric vessels was first thought of, but the mesentery beyond some congestion was normal. Dark purplish, but not gangrenous, and slightly dilated coils of small intestine were seen. At least six feet of gut or more was found in this condition, at its upper end passing gradually into normal intestine; at the distal end a constriction groove was detected and there was a sharp line of demarcation as regards colour between the healthy and affected parts of the bowel on either side. An aperture was then found in the great omentum near its free margin, and through this the small intestine had prolapsed; the lower margin of the aperture, which was only the free edge of the great omentum, was stretched like a cord over the prolapsed intestine. The stomach, gall bladder, and appendix were normal. The band-like free margin of the aperture was cut between forceps and the ends ligatured—thus the strangulation was relieved. The great omentum, as a whole, was very thin, but nothing further was done to it. The sanious fluid was let out and the abdomen flushed with hot saline, some of which was left. The abdomen was then closed in layers.

As the patient was in great shock when removed to the ward, continuous saline was given by the rectum, as also a hypodermic injection of pituitrin (1 c.cm.). The saline was continued for two days, and hypodermic strychnine gr. $\frac{1}{30}$, and eserine sulph. gr. $\frac{1}{100}$, administered four times a day for three days. A turpentine enema was given the day after the operation to overcome the abdominal distension, and another the day after that. The bowels moved naturally and freely on the fourth day without having anything by mouth. He is making a progressive recovery, and his general condition is quite satisfactory.

Generally in such cases the great omentum contracts an adhesion to some part of the abdomen, and this adhesion gets stretched to a band which eventually leads to strangulation, but in this instance there was no adhesion between the free margin of the great omentum and any part of the abdomen. The small intestine herniated through an aperture in the great omentum and this caused the strangulation.

I am indebted to Mr. Grant, under whose care the patient is, for permission to publish the case.

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THE REDUCING BODY IN THE CEREBRO-SPINAL FLUID.

THE paragraph in the JOURNAL of July 6th (p. 15) recalled to my mind that twenty-two years ago I recorded in the JOURNAL of 1896 the amount of copper reduced from Fehling's solution by 10 c.cm. of cerebro-spinal fluid in seven cases of general paralysis. It varied between 12.5 and 22 mg.; the average was 16.75 mg.

In the *Journal of Mental Science*, 1910, I recorded the amount in a further series of cases—in eleven general paralytics, one tabetic, and one case of meningeal syphilis; the average for the thirteen was only 14.6 mg., but in the fluid of one general paralytic none was found—the only case in which I have found it to be absent. The amount in these twelve (excluding the one in which there was none) varied between 8 and 21 mg.

Among seven epileptics—four females and three males—it averaged 19 mg., varying between 14 and 21 mg. In nine cases of dementia praecox it averaged 20.3 mg., varying between 15 and 25.5 mg. In six cases of Korsakoff's syndrome the average was 22 mg., varying between 15 and 29.5 mg. In ten unclassified insane women it averaged 19.8 mg., varying between 14.5 and 25.5 mg. So far as my experience went I found this substance to disappear rapidly from the fluid after death.

JOHN TURNER, M.B., C.M.Aberd.
Brentwood Asylum, Brentwood, Essex.

TETANUS NEONATORUM.

I WAS interested in Dr. Renton's case reported in the BRITISH MEDICAL JOURNAL of June 29th, 1918. It reminded me of a similar case which was in my care at the Fulham Infirmary about 1905. A male child 11 days old was admitted for fits, and although I have no notes by me, my recollection of the case is good. There was a condition of epileptiform convulsions of a severe type, with considerable rigidity of the jaw which should have suggested tetanus but did not. Feeding was impossible, and the fits were not affected by hot or cold baths or packs, by bromides or morphine, and I well remember their persistence even while I administered chloroform. The fits increased in violence and frequency until death. Being unsatisfied, I obtained permission for a *post-mortem* examination; I expected to find some head injury or perhaps cortical haemorrhages to explain the case. I found nothing of the sort, but noticed a red inflammatory zone round the umbilicus (which had separated), and oozing from a small broken area of skin at the umbilicus base was a little watery fluid. In Gram-stained smears from this slightly purulent liquid I was able easily to detect typical drumstick tetanus bacilli, and Dr. C. T. Parsons, the superintendent, was able to confirm my view.

In commenting upon the uncommon cause of this accidental death, the coroner, Dr. Oddie, remarked upon its medical interest and importance. Of course I could not

say whether the bacilli were conveyed to the umbilical region at the time of birth in the ligature used or upon infected scissors.

CHARLES RUSS, M.B.Lond.,
London, W. M.R.C.S., L.R.C.P.

Reviews.

TWILIGHT SLEEP.

DR. W. O. GREENWOOD[1] and Dr. C. WEBB-JOHNSON[2] have made two interesting additions to the growing literature of what is popularly called "twilight sleep," both founded on personal experience and both enthusiastic as to the value of the method, although they adopt different terms for the expression of their enthusiasm.

Dr. Greenwood's book contains a quietly reasoned account of the history and literature, and a useful and practical discussion of his own 200 cases; it may be recommended to any doctor who wishes to begin the use of the method in his own practice. His chapter on technique is most helpful. He is a loyal adherent of the "amnesia" as opposed to "analgesia" school. Of the results on the mother he says: "Probably the most striking after-effect on the mother is the remarkable absence of shock and exhaustion. In long, tedious cases which have occupied anything from twenty-four to forty-eight hours or more it is no exaggeration to say that the results are little short of spectacular." He had three cases of mitral lesion and three of marked albuminuria. He met with *post-partum* haemorrhage in three instances, all in patients who had previously so suffered. He had three cases of artificial respiration for the child, in each of which the cause was an ordinary obstetric complication. He gives illustrative case reports and a useful bibliography.

Dr. Webb-Johnson's book reveals a different atmosphere, and almost seems addressed to a different class of reader; it is certainly more distinctly propagandist. Possibly owing to the difference of the conditions under which work has to be done in the East he has adopted a system of standard dosage. He also gives illustrative cases and appends typical charts. We are indebted to his book for a new translation of "vitium cordis" as "twists of the cord."

THE UNITED STATES DISPENSATORY.

WE have before us for review the twentieth edition of that monumental work of reference, *The Dispensatory of the United States of America*,[3] which first appeared eighty-five years ago. The present edition is an immense volume of 2132 pages, and consists for the most part of articles on official and unofficial preparations arranged in alphabetical order. While the number of pages has been doubled since 1833, the amount of reading matter has been nearly quadrupled by increasing the size of the page and decreasing the size of the type. The twentieth edition follows the plan of the nineteenth, which appeared eleven years ago, and was reviewed in our issue of September 21st, 1907. The preface records the loss which American pharmacy has suffered through the death of Professor Joseph P. Remington, since 1880 one of the editors of the *Dispensatory*, who passed away whilst this edition was in the press. During the last ten years the advances in the pharmaceutical and medical sciences have been so great that a most extensive revision has been needed, and the work has been almost entirely rewritten. For the thorough performance of this task the staff of editors was doubled, and six names now appear on the title-page. The present edition is based on the ninth revision of the *United States Pharmacopoeia* and the *British Pharmacopoeia*, 1914. The original editors defined the objects of a dispensatory as "to present an account of medicinal substances in the state in which they are brought into the shops, and to teach the modes in which they are prepared for use." In the standard form which it has now reached the official part of the *United States Dispensatory* may be looked upon as a commentary upon the United States and British *Pharmacopoeias*, expanded to include reference to such preparations of the French *Codex* and the German *Pharmacopoeia* as are generally used in the United States. The main body of the work is divided into three parts. Part I, occupying over 1,200 pages in double columns, contains a discussion of all the remedies recognized by either of the two pharmacopoeias used by English-speaking people. Part II consists of 452 pages of smaller type and deals with non-official drugs and preparations—that is to say, remedies which, though not recognized in the pharmacopoeias, yet by reason of their use in domestic or professional medicine, their toxic properties, their history, or the probability that they may prove valuable in the future, call for notice in an encyclopaedic work of this sort. An exhaustive description of all these substances is not attempted, but the aim has been to give in Parts I and II at least the essential facts and a key to the literature of almost everything used in medicine. The 168 pages of Part III are devoted to the tests and reagents of the two pharmacopoeias, weights and measures, and an abstract of the national formulary of the American Pharmaceutical Association. A copious index fills the last 168 pages. Since the numbering of pages is consecutive throughout the three parts, reference from the index is easy. The volume, as a whole, is a wonderful achievement—at the same time comprehensive and practical—and its usefulness to the practitioner and the pharmacist is unquestionable. The high price will, however, we fear, place it beyond the means of most of those who would wish that their bookshelves might groan under its weight.

WAR SURGERY.

THE book on military surgery,[4] by Dr. MAUCLAIRE of the Charité Hospital, Paris, contains in its twenty-four chapters a comprehensive account of the present position of war surgery in France. Chapters on the general treatment of war wounds, and on traumatic and operative shock, are followed by a discussion of the various infections—for example, erysipelas, hospital gangrene, septicaemia, gas gangrene, and tetanus. Later chapters deal with the localization and removal of projectiles; with wounds of muscles, tendons, veins, arteries, and nerves; with gunshot fractures of the bones and wounds of joints, and with wounds of the head, brain, neck, spine, cord, chest, pleura, lung, abdomen, face, and the genito-urinary organs, and special attention is given to injuries of the mediastinum, pericardium, heart, diaphragm, liver, and spleen. There are chapters also on trench feet, frost-bite, amputations, and prosthetic apparatus. As examples from this very extensive list, we have selected two common injuries occurring in the war, namely, gunshot fractures of the femur and wounds of the knee-joint. In writing of the treatment of fractures of the lower extremities, especially of the femur, for which so many forms of apparatus have been devised, the author condemns the use of simple plaster appliances to maintain reduction, radiography having proved the inefficacy of the method. He, however, considers it quite good as a means of maintaining more or less immobility during transport. He describes many forms of apparatus for the treatment of fracture of the thigh, for example, the double inclined plane, extension apparatus with weights or elastic bands, metallic frames, suspension with extension, Thomas's splint (so largely employed and so highly valued in both the British and Italian armies), ambulatory apparatus, and so on, but insists on the necessity of frequent radiographic examination, to control the results whatever form of appliance is used. The author divides wounds of joints into two great classes—those with slight and those with severe bone injury.* He claims that in the first class the classical treatment should, as the result of experience in this war, be modified. Provided the case comes under observation within twenty-four hours after the receipt of the injury,

[1] *Scopolamine-Morphine: Semi-Narcosis during Labour.* By Wm. Osborne Greenwood, M.D.Leeds, B.S.Lond. London: H. Frowde, and Hodder and Stoughton. 1918. (Cr. 8vo, pp. xi + 120. 6s. net.)

[2] *Painless Childbirth in Twilight Sleep in the East.* By Cecil Webb-Johnson, M.B., Ch.B., Captain R.A.M.C.(T.F.). Calcutta: Butterworth and Co. (India), Limited. 1918. (Demy 8vo, pp. 123. Rs.4 net.)

[3] *The Dispensatory of the United States of America.* Edited by J. P. Remington, Ph.M., F.C.S., H. C. Wood, Jun., M.D., S. P. Sadler, Ph.D., LL.D., C. H. LaWall, Ph.M., H. Kraemer, Ph.G., Ph.D., J. F. Anderson, M.D. Philadelphia and London: J. B. Lippincott Co. 1918. (Sup roy. 8vo, pp. 2132. £2 10s. net.)

[4] *Chirurgie de Guerre, Chirurgie d'Urgence, Chirurgie Reparatrice et Orthopédique.* By Dr. Mauclaire, Chirurgien de la Charité, Professeur agrégé à la Faculté de Médecine de Paris, etc. Paris: J. B. Baillière et Fils. 1918. (Med. 8vo, pp. 532; 316 figures. Fr. 16.)

the bruised and infected tissues should be excised, any splinters of bone or foreign bodies removed, and an attempt at primary union made. He thinks that in cases in which the bone injury is severe resection should generally be the treatment, but that if with severe bone injuries the soft parts are extensively lacerated, amputation is undoubtedly called for. In the application of these principles to the treatment of wounds of the knee-joint he refers to Gray's results in the former class of cases, those with slight bone injury. He treated sixty examples, with forty-nine good results (free movement), with limited movement in four, with ankylosis in three. There were four failures. In the chapter on tetanus the author calls attention to the fact that the frequency of tetanus has usually increased with the duration of a campaign; that in this war the number is decreasing Dr. Mauclaire attributes to the more or less universal employment of prophylactic injections of antitetanic serum. In the treatment of the disease he employs 20 to 40 c.cm. of antitetanic serum daily, according to the gravity of the case, either by subcutaneous, intravenous, or intrathecal injection. At the same time he uses chloral or morphine and subcutaneous injections of carbolic acid. As a whole, the book, in spite of its many good points, is disappointing. The reader would have desired more definite guidance in the selection of cases for the special forms of treatment advocated and a much fuller reference to the details of treatment. The illustrations are numerous and excellent.

NOTES ON BOOKS.

DR. CROFTON'S book on *Therapeutic Immunization*[5] gives a short and simple account of the theory and practice of vaccine therapy. It is clearly written, few of the new and unintelligible terms with which bacteriologists are so apt to darken knowledge are employed. Full directions for the use of the many vaccines indicated are given. The book may be recommended to practitioners of medicine who prescribe vaccine treatment, for which it makes no extravagant claims.

[5] *Therapeutic Immunization: Theory and Practice.* By W. M. Crofton, M.D. London: J. and A. Churchill. 1918. (Cr. 8vo, pp. 224. 7s. 6d. net.)

ROYAL MEDICAL BENEVOLENT FUND.

AT the meeting of the Committee on July 9th, 1918, twenty-six cases were considered, and £244 12s. voted to twenty-four of the applicants. The following is a summary of some of the cases relieved:

Daughter, aged 68, of M.R.C.S.Eng. who died in 1878. Was left totally unprovided for and now, through advancing years, unable to work. Lives with a widowed sister who cannot afford to keep her. Voted £12 in twelve instalments.

Widow, aged 48, of M.B.Edin. who died in 1910. Was left without income with four children, now aged 11–19. Receives £21 per annum from other funds. Recently had a situation, but has been compelled to give it up with a view of looking after the younger children. Relieved six times, £60. Voted £10 in two instalments.

Daughter, aged 63, of L.F.P.S.Glag. who died in 1883. Has been in bad health for a long time. Only income £15 from another charity and the amount given by the Fund. Relieved eleven times, £166. Voted £12 in twelve instalments.

Daughter, aged 66, of M.R.C.S.Eng. who died in 1883. For some years acted as a matron of a home, but, owing to rheumatism and deafness, had to give it up. Total income, £31. Lives with a sister, who shares the rent. Relieved four times, £46. Voted £12 in twelve instalments.

Widow, aged 53, of L.R.C.P. and S.Edin. who died in 1893. Was left with two young children, both of whom are now in the navy, and allow her 15s. a week. Applicant's health is bad, and she recently fractured her leg. Relieved fifteen times, £149. Voted £12 in twelve instalments.

Daughter, aged 62, of M.R.C.P.Edin. who died in 1884. Through ill health applicant is unable to work. Has a pension from another charity of £40, and pays 16s. a week for board and lodging. Relieved fourteen times, £127. Voted £12 in twelve instalments.

Subscriptions may be sent to the Acting Honorary Treasurer, Dr. Samuel West, at 11, Chandos Street, Cavendish Square, London, W.1.

The Royal Medical Benevolent Fund Guild is now called upon, as a result of the war, to deal with many widows and children who, in happier times, would not have thought of asking for assistance. It is glad to receive secondhand clothing and household linen. The class of clothes most wanted is that suitable for boys and girls working in offices, for women, and for old men. The gifts should be sent to the secretary of the Guild, 43, Bolsover Street, W.1.

INCOME TAX.

THAT the assessment of income tax has become more complicated is sufficiently obvious, but it is worth while emphasizing the fact that one effect has been to make the amount of the total income of the husband and wife a much more important factor in the determination of the total amount of income tax to be borne by the taxpayer. We therefore give below a table showing the limits at which the allowances or rates of tax vary, which may be found convenient for future reference.

It should be borne in mind that the income is to be reckoned at the gross amount before tax is deducted, and that in dealing with income received in 1917 after that deduction was made, an addition of *one-third* should be made to the net amount. The error to be avoided is the adding to the net amount of the fraction one-quarter. Where 5s. in the £ has been deducted the same amount must, of course, be added back; but where the starting point is the net amount actually received—that is, the 15s. in the £—that amount is one-third, inasmuch as one quarter of the full sum is the same as one-third of three-quarters of the same amount. The error may on the one hand adversely affect the revenue authorities by bringing the total income below a limit which it correctly exceeds, or, on the other hand, prejudice the taxpayer by showing his taxed income at too low a figure, because in most cases a rebate is due on that portion of the income which is taxed at the full rate. To arrive at the correct gross amount of income interest received in full should be stated at the amount received in the previous financial year—that is, the year ended April 5th, 1918.

One other point is worth notice. It sometimes happens that the total income exceeds one of the limits by so narrow a margin that, apart from any special provision in the Acts, the recipient would really be worse off after payment of the tax on the increased rates necessitated by that margin than he would be if his income were less than the particular limit in question. This point is, however, dealt with by Section 29 of the Finance Act of 1917, the effect of which is to put such a taxpayer in this position, that he hands over (as income tax) the excess over the limit, and then pays tax as if his income did not exceed this limit. This relief need not be specifically claimed; it is the duty of the assessors to allow it wherever due, provided of course that a proper statement of total income has been made.

Income Tax, 1918–19.

Total Income not Exceeding	Abatement Due.	Allowance for Wife, Children, and Dependent Relative.	Life Assurance.	Rates of Tax on Incomes.		
				Earned.	Unearned.	Army and Navy Pay, etc.†
£	£			s. d.	s. d.	s. d.
300	120*	£25 for each subject of claim	One sixth of total income, but subject also to other restrictions.	2 3	3 0	0 9
400	120			2 3	3 0	1 3
500	100			2 3	3 0	1 3
600	100			3 0	3 9	1 9
700	70			3 0	3 9	1 9
800	—			3 0	3 9	1 9
1,000	—	—‡		3 0	3 9	1 9
1,500	—	—		3 9	4 6	2 3
2,000	—	—		4 6	5 3	2 9
2,500	—	—		5 3	6 0	3 3
Exceeding 2,500	—	—		6 0	6 0	3 6

* £160 abatement allowed if serving in His Majesty's Forces.

† Allowances for abatement, etc., to be made from civil income first, leaving "pay" free as far as possible to benefit from the reduced "service" rates.

‡ £25 for each child in excess of two.

British Medical Journal.

SATURDAY, JULY 20TH, 1918.

ANOPHELINE MOSQUITOS IN GREAT BRITAIN.

WRITING on May 25th last on precautions against the spread of malaria in England, we pointed out that recent surveys have shown that *Anopheles* occur in small numbers in the summer all through the United Kingdom. Mr. William Dickson Lang, assistant in the department of entomology of the Natural History Museum, has now published, under the aegis of the trustees of the British Museum, a map showing the known distribution in England and Wales of the anopheline mosquitos, with explanatory text and notes.[1] In a short preface to this timely publication, Dr. C. J. Gahan, keeper of the department of entomology, reminds the general reader that the anopheline group of mosquitos, while made up of several distinct species, some found in one part of England and some in another, contains all those particular species of mosquito which have been proved to act as carriers of malaria. Three species of *Anopheles* are indigenous in Britain, and two of them—*A. maculipennis* and *A. bifurcatus*—are known to be malaria carriers—the former being most active in the spread of this disease in Southern Europe.

The map and its accompanying text show, in as complete a form as the present state of knowledge allows, the distribution of the three species of anopheline mosquitos in England and Wales. Such information, as we explained two months ago, is of considerable importance at the present time because there are now a large number of infected soldiers in this country who have returned from overseas; they form a source from which malaria might conceivably be spread through the agency of indigenous mosquitos if this risk were not guarded against by appropriate measures. The many blanks on the map represent, in part at least, lacunae in knowledge, for there are many districts in which no search for anophelines has been undertaken. There are, on the other hand, some large areas in which a great deal in that direction has already been done, mainly through the action of the medical authorities of the Local Government Board and of the War Office. It is much to be desired that a complete investigation of the whole country should be carried out, for, as Mr. Lang takes care to explain, neither with regard to range nor to the frequency of occurrence is the true distribution of anophelines directly shown on his map, though it shows clearly enough the districts where this insect has been most keenly sought. Bearing in mind this source of error when drawing deductions as to distribution from the map, we may note that it appears to support the usual idea that anophelines are most abundant in the lower reaches of the larger rivers and in low-lying tracts of marshy land. Localities where captures have been made are indicated by coloured rings and triangles enclosing reference numbers to the text, where particulars of each record are given, together with notes and general observations, some of which are of much interest, and make it possible to construct to some degree the life-history of the species concerned. Following the list of localities are practical notes on how to tell a true gnat (that is, a mosquito) from other flies; how to tell a British anopheline mosquito from a culicine mosquito (that is, a malarial from a non-malarial gnat); and how to distinguish the three British species of *Anopheles*. Lastly, a short account is given of what is known of the life-history of each species. Although the map does not include Scotland and Ireland, for the sake of completeness Scottish and Irish records have been added to the text after those from Wales. From the few available records it would seem that *A. plumbeus* and *A. bifurcatus* are both commoner in Scotland than *A. maculipennis*, whereas in England the first named is the least common of the three species.

In our previous article we noted that, notwithstanding the presence of *Anopheles* in these islands, their numbers are usually considered to be so small as to reduce the danger of the spread of malaria to an almost negligible quantity. Upon this matter Sir Ronald Ross had something to say at the recent congress of the South-Eastern Union of Scientific Societies.[2] In opening a discussion on mosquitos in England he sought by a calculation of chances to allay the fears as to the possible recrudescence of malaria in Britain. He argued that the spread of malaria in a community is dependent upon some fifteen different factors, combined in certain mathematical functions. Of the millions of anopheline mosquitos bred in a locality only a few would be likely to bite a human being at all, fewer would bite an infected human being, and fewer still would bite an infected person whose blood contained sexual parasites suitable for transmission into a mosquito. "Hence the chances usually are that only a very small proportion of anophelines in a place would ever become infected at all. But how many of these will infect healthy persons? A mosquito must live for about ten days at least before the parasites can mature in her body and enter her salivary glands, and of the small proportion of mosquitos which may live long enough for this a still smaller proportion are likely to succeed in biting and infecting healthy persons afterwards. Men and mosquitos may vary in individual resistance to parasites. Both will be infective to each other only at certain times."

From all this, if we follow Sir Ronald Ross aright, the conclusion would seem to be that, in view of the relative infrequency of British anophelines even during hot weather, the presence of malarial soldiers and sailors in this country need give rise to no alarm, provided measures are taken to keep down mosquitos and prevent their access to infected persons. Such precautionary measures, combined with a general system for the immediate notification of cases of malaria, have been organized by the War Office working in association with the Local Government Board.

THE TREATMENT OF PERNICIOUS ANAEMIA.

UNTIL comparatively recent times the treatment of pernicious anaemia usually consisted of rest, diet, and arsenic, but subsequently more radical measures, such as operations for elimination of foci of infection, transfusion of blood, and splenectomy, have become prominent. These procedures are elaborate and sometimes not devoid of ill effects. Bloomfield[3] has, therefore, analysed a series of fifty-seven cases,

[1] *A Map showing the Known Distribution in England and Wales of the Anopheline Mosquitos; with Explanatory Text and Notes.* By W. D. Lang, M.A. London: Longmans, Green, and Co.; B. Quaritch; Dulau and Co., and at the British Museum (Natural History). (Price 2s. 6d.)

[2] *Nature*, June 20th, 1918, p. 314.

[3] A. Bloomfield, *Bull. Johns Hopkins Hosp.*, Baltimore, 1918, xxix, 101–6.

treated during the last five years at the Johns Hopkins Hospital, in order to obtain more definite information as to the comparative value of the various methods of treatment in prolonging life or inducing remissions. The criterions employed to judge of the effect of treatment on this disease, in which the variations and spontaneous remissions render this an especially difficult problem, were (1) the effect of treatment on the total duration of the disease, (2) the readiness with which remissions are induced, (3) the length of the remissions, (4) the effect of a particular form of treatment on special symptoms, (5) the death-rate in hospital, and (6) the blood picture. Twenty-eight cases treated by the older methods of rest, diet, and arsenic in the forms of Fowler's solution, cacodylate of sodium, and salvarsan, served as controls to the other and more modern methods.

The reputation of arsenic rests entirely on general impressions, and analysis of the cases yields no reliable data as to its efficacy. In twelve cases a thorough investigation of the nose, throat, sinuses, teeth, gastro-intestinal canal and lower urinary tract was made for foci of infection, and when found these were eliminated. In none of them was there any feature in their subsequent course to distinguish them from the group in which such foci were not found or, if found, were not treated, either as to total duration of life, or extent and degree of remissions. It is unlikely, therefore, that such foci are the cause of pernicious anaemia. Twenty-six patients received transfusions of blood, varying in number from one to seventeen, and from a total of 300 to 8,700 c.cm. of blood. In patients who are not in a stage of the disease refractory to all forms of treatment, remissions have come on more often when transfusion has been performed, but the artificial plethora thus induced did not increase the duration of the remission, though the patients felt better while the red count was high. At the Johns Hopkins Hospital splenectomy for pernicious anaemia has now been given up; out of eight cases so treated six are dead, and in no instance was the clinical picture essentially altered or life unusually prolonged. In five of the cases transfusion of blood was performed during the period following splenectomy, but in the four cases in which the duration of the remission could be accurately determined there was no evidence that transfusions are "held" better after than before splenectomy. The central nervous symptoms were as little benefited by transfusion and splenectomy as by other means of treatment.

Bloomfield has carried out his analysis with cold mathematical accuracy and a relentless disregard of clinical impressions; no attempt has been made to promote or discredit any particular method of treatment, and it is admitted that the general conclusions yielded by these statistics may allow of exceptions in individual cases. But the disappointing and important conclusion that no definite evidence has been found that transfusion of blood, splenectomy, or elimination of foci of infection prolongs life in pernicious anaemia, must be faced.

AMERICAN AND BRITISH DOCTORS.

SOME months ago the American Medical Association forwarded to the British Government a request that it should send representatives to attend its annual meeting in June held in Chicago. In response to this invitation, a mission consisting of Sir James Mackenzie, Colonel Sir W. Arbuthnot Lane, R.A.M.C.(T.C.), and Colonel Herbert A. Bruce, C.A.M.C., was dispatched by the Ministry of Information. The members gave addresses at all the principal meetings, and took an active part in the discussions. They also spoke at large public meetings at Cincinnati, Boston, Detroit, Cleveland, Pittsburgh, and Philadelphia, and also at Toronto, to audiences varying from 500 to 5,000, comprising members of the medical profession and important business and professional men. The American recruiting authorities availed themselves of the opportunity to send representatives, who accompanied the mission, and appealed to the members of the medical profession to join the army. There were then 22,000 medical officers in the American army, and during the visit of the mission 5,000 other medical volunteers came forward, until by June 22nd the lists closed, completely filled. The mission visited the chief manufacturing establishments, which are devoting all their energy to the construction of ships of war of all sorts, merchant ships, aeroplanes, and munitions. They also saw huge new plants, which had grown into splendid efficiency since the entrance of America into the war. The mission, which has just returned to England, has addressed a letter to the *Times* in which the members say that from these wide and varied sources they "gathered the conviction that the American people have been thoroughly aroused, and are in entire agreement with Great Britain and her Allies. The business community have formed a clear conception of the magnitude of the task before them, and they are employing their unlimited resources of men and material to prepare for the coming ordeal. At each public meeting the mission was asked to convey a message from the people of America to the people of Great Britain and her Allies to the effect that they are to be of good cheer; that America is with them whole-heartedly, and that she has thrown herself into the conflict with all her strength, with the firm determination to fight till victory is complete. From the extreme cordiality of their reception by all classes of the community the Commission feel justified in believing that the bonds of sympathy between the nations have been materially strengthened by their visit."

THE WAR COLLECTION AT THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

THE annual report on the Museum of the Royal College of Surgeons of England by the Conservator shows that a great part of the energy of the staff has been devoted during the past year to the "War Office Collection." The number of specimens received has increased from 1,500 to 2,700, but there are still certain deficiencies to be made good, which will be apparent to those who study the series of specimens now on exhibition. The exhibition occupies three of the largest rooms, and many additions have been made since we gave an account of the collection in the JOURNAL of October 20th, 1917. The preparation and description of the specimens has been undertaken by Professor S. G. Shattock, F.R.S., the Pathological Curator, and Mr. Cecil Beadles, the Assistant Pathological Curator. The specimens illustrate the nature, healing, and pathology of wounds produced under modern conditions of warfare. One of the rooms is devoted to macerated specimens, which have been described and arranged under the supervision of Professor Arthur Keith, F.R.S. The arrangement of the collection of radiographs and drawings has been undertaken by the Physiological Curator, Mr. R. H. Burne. The collection includes a Canadian section, prepared by members of the Canadian Army Medical Corps. The Canadian Government some time ago placed a special fund at the disposal of the Director of its Medical Service for the preparation of specimens "to illustrate the modes of treatment adopted and the nature of the results obtained" in hospitals officered by members of the Canadian Army Medical Corps. A staff of experts, with Major F. Lessore, the distinguished sculptor, at their head, has been engaged at No. 16 Canadian Military Hospital making wax and plaster models, coloured drawings and coloured photographs of wounds and war deformities. The collection

thus made forms the basis of the growing Canadian section now exhibited. It is hoped that Australian and New Zealand sections will also be added, for the medical services attached to the armies of all the self-governing countries are contributing specimens to the War Office Collection with the view of building up army medical museums for their respective countries. Consignments of Canadian specimens have already been dispatched from the workrooms of the Museum to Montreal, while the Director-General of the Australian Medical Corps has given the Museum staff effective assistance in dealing with specimens received from Australian hospitals. It will thus be seen that the Council of the College, through its Museum staff, is rendering a valuable service to military surgery and medicine. In addition to these special war specimens a number of additions have been made to the pathological, teratological, and physiological collections. Many additions have also been made to the odontological section by the Honorary Curator, Mr. J. F. Colyer. Mr. Alban Doran, who during the past eight years has been engaged in the preparation of a new descriptive catalogue of the surgical instruments in the possession of the College, has made considerable progress. The descriptive catalogues of the obstetrical and gynaecological instruments in the Museum, as well as of the surgical instruments which were formerly the property of Lord Lister, have been completed, as also that of the instruments once the property of John Hunter and other Hunterian relics. Mr. Doran has just finished the manuscript text of a catalogue of instruments for operations on the genito-urinary system in the male; a number of other sections remain to be dealt with.

THE SPIROCHAETES OF THE NORMAL MALE UROGENITAL TRACT.

URINARY spirochaetosis has become of special interest in connexion with pyrexia of unknown origin and other fevers brought into prominence by war conditions, and an accurate knowledge of the varieties of spirochaetal organisms normally present in the smegma and mucous membrane of the urogenital tract is essential in order to estimate the etiological relation between a given spirochaete and a disease in which this organism is found in the patient's urine. This want has recently been supplied by Noguchi [1] in his research into the spirochaetal flora of the normal male genitalia, which, covering the ground of Stoddard's work (vide BRITISH MEDICAL JOURNAL, 1917, ii, 416), shows by extended observations and critical analysis that the spirochaetal flora may be reduced to three forms—namely, the *Spironema refringens*, *Treponema calligyrum*, and a new species, *Treponema minutum*. The spirochaetes from the male smegma enumerated and shown in Noguchi's thirty-two photomicrographs represent practically every form hitherto described by Nankivell and Sundell and by Patterson in the specimens of urine from patients with trench fever. The urethral flora described by Stoddard seem to contain more varieties, but, except those of his more detailed morphological descriptions, every form observed by him is among those found in the smegma. The three forms distinguishable in photomicrographs or under the dark-field microscope are the minute, the medium (*calligyrum*), and the large (*refringens*) types. The minute type is not unlike the minute spirochaete of the mouth (*Treponema microdentium*), but their cultural characters are distinctive. Stoddard saw certain forms with hooked ends suggesting *Spirochaeta icterohaemorrhagiae*, but this is the only point of resemblance, and their differentiation should always be possible under the dark-field microscope, by means of which the highly characteristic minute elementary spirals, presenting the appearance of a chain of dots, can be made out in *Spirochaeta icterohaemorrhagiae*. Noguchi never found spirochaetes in films made from the urethral mucous membrane, his observations being based on organisms found in the smegma.

[1] Noguchi, H., *Journ. Exper. Med.*, Baltimore, 1918, xxvii, 667-678.

FEBRIS WOLHYNICA.

A PERFECT maze of publications, long and short, with this heading has appeared in the German and Austrian medical press, which has been drenched with a sort of printer's drum fire on this subject. Out of this tangle, Dr. Oluf Thomsen,[1] of the Serum Institute of Copenhagen, has picked out the most salient features of a disease which was practically unknown before the war, except to Polish physicians, who seem to have regarded it as a form of malaria. Early in 1916 the disease was observed in soldiers on the German Eastern front. Its geographical name, *Febris wolhynica*, was as misleading as its symptomatic name, *Febris quintana*, which suggested a variety of malaria, for it was observed also on the Western front, and no bodies resembling the malarial parasite have been found in the blood, and laborious searches for them have been made. It presents many of the characteristics of trench fever. They may, indeed, prove to be identical, though Wolhynian fever, as referred to by certain German writers, would appear to be a very definite fever, with a far more uniform clinical picture than that of trench fever. According to Dr. Thomsen, the first symptom is lassitude, followed in a day or two by a sudden rise of temperature to about 40° C. The early symptoms, which may be preceded by rigors, are a sense of great heat and profuse sweating. The patient is giddy, and his muscles feel bruised. A very characteristic and most unpleasant symptom is pain in the legs, especially the shins. This pain—gaiter pain—is often worst in the evening or at night, and is stabbing, boring, or burning. After lasting about forty-eight hours the temperature falls almost to normal, and this may be the end of the attack. It may, however, recur as often as ten or twelve times, at intervals of five to six days. These intervals may last only two to three days, or may be as long as seven to eight. The prognosis is good, and the disease is seldom if ever fatal. Slight jaundice, great pallor, herpes, a scarlatiniform or small papular rash, and slight enlargement of liver and spleen have all been observed. There is an absolute and a relative increase in the number of the polymorphonuclear neutrophil leucocytes, and, after two or three attacks of fever, the red cells may show slight polychromasia. The disease can be experimentally transmitted to man by lice, which, it is thought, are probably always responsible for the development of the disease in man. Various bodies have been found in the digestive system of the louse and in the blood of man, but the evidence on these points is still conflicting. No satisfactory treatment has yet been found.

[1] *Hospitals Tidende*, March 13th, 1918.

SMOKING AND PULMONARY TUBERCULOSIS.

IT is generally believed that tuberculous patients should avoid chronic catarrhal affections of the upper air passages, and that if smoking, and especially inhalation of cigarette smoke, induces pharyngitis and tracheitis, the practice should be forbidden. Webb's statistics show, on the one hand, that comparatively few non-smokers (27 per cent.) have rhonchi, while most smokers and 83 per cent. of those who inhale cigarette smoke present signs of chronic bronchial irritation; and, on the other hand, that out of more than 3,000 young men discharged from the American army on account of active tuberculosis, the proportion was no higher among smokers with rhonchi than among non-smokers with relatively "quiet" chests. As pulmonary tuberculosis often follows colds and other catarrhal conditions, it has been assumed that an inflamed tissue is a diseased tissue and more liable than a healthy tissue to bacterial invasion. Krause combats these conclusions

in a recent paper,[1] and points out that clinical observation is in obvious opposition to them; thus a chronic ulcer of the leg is rarely the site of acute bacterial infection, erysipelas arises more often in non-inflamed skin or in a clean operative wound than in a carcinomatous ulcer or an open patch of lupus, and acute bronchitis seldom ushers in frank lobar pneumonia. Observations by Opie, Pawlowsky, and Issayeff support the conclusion that inflamed tissues, far from being a favourable soil for bacterial invasion, are points of unusual resistance. But the question as to the influence of inflammation when a focus of tuberculosis already exists in the chest is on a different footing from the protective action exerted by inflammation to bacterial invasion. There is no doubt that considerable inflammation around a tuberculous focus does harm by spreading the disease, whereas a slighter grade of inflammation is either harmless or exerts a beneficial action. This is well shown by the effect of tuberculin on tuberculous foci. The inhalation of smoke causes a comparatively mild inflammation, and, as it is usually frequently repeated over a long period, it is likely to be mildly stimulating and to lead to repair, and not to be violently upsetting, as might occur from lobar pneumonia surrounding a patch of tuberculosis. This applies only to the local effects of inhaled tobacco smoke, and the more general results of tobacco on the digestive, nervous and vascular systems must be kept quite distinct. But even so, there is no doubt that many tuberculous patients will be much comforted by the reasons given for the belief that the local irritating effect of tobacco smoke is not fraught with danger.

THE MEDICAL SUPERVISION OF AVIATORS.

In the pleasantly written article on "Some points in connexion with flying" Fleet Surgeon St. John Murphy, R.N.,[2] rightly emphasizes the importance of the Air Service medical officer being in constant touch and complete sympathy with the flying officers, and of giving the most careful consideration to any complaint, however trivial it may seem. Thus, if a pilot gets it into his head that a particular home station does not suit him, or that he dislikes the make of his aeroplane and feels that it is going to let him down, a change should, if possible, be made. The signs of fatigue and flying stress should be carefully watched for and special physical tests employed, so as to obviate the risk of breakdown or disaster by a timely rest. If feeling out of sorts, the pilot should be excused flying for a day or two; it is far better to lose this time than to lose his services altogether, for if he goes up feeling out of sorts he may crash or lose his nerve, and never be the same again. A crash may change the flying man's outlook on what previously was his delight, and after a bad experience it is about an even chance if he will be any good again. Memory of the details of the crash appears to exert a worse influence than unconsciousness, which therefore interferes less with the future of the patient's flying career. A change from pilot to observer after a crash is seldom a success, as, once a pilot, it is difficult to sit behind another. The relation of temperament to aviation offers a large and important field for investigation. From his experience, Fleet Surgeon Murphy finds that the aviator has the manner of a man five or ten years older than his age, and yet is restless, always on the move, seldom settling down to a book, and too often smoking cigarettes. In the air his bravery is beyond question, but the prospect of a dental extraction or stopping is a mightily disturbing matter. The sooner after completing his training a pilot is sent to the front the better; for the skilled aviator just passed is the ideal man for the fighting line, whereas retention at a home station as an instructor impairs his keenness for the duties of a fighting pilot. The danger of giving way to a tendency to smoke too many cigarettes—and more than ten a day is considered excessive—is insisted on, and a table of the times and number of cigarettes to be allowed is given. The sensible opinion is expressed that alcohol is best avoided altogether or, if allowed in an aerodrome, taken only after working hours. The symptoms of air sickness, akin to but not so common as sea sickness, are vomiting and malaise, and the condition appears to be incurable in some subjects. The remarks on the examination of candidates for air work might have contained more about Martin Flack's tests, and it would have been interesting to have had more about the correlation of these physiological tests with the psychological features of fatigued and unfit aviators.

[1] A. K. Krause, *Bull. Johns Hopkins Hosp.*, Baltimore, 1918, xxix, 106–109.

[2] J. St. John Murphy, *Journal of the Royal Naval Medical Service*, London, 1918, iv, 281–4.

DEGREES FOR RESEARCH.

In accord with the other British universities, and following the lead of Oxford and London, the University of Edinburgh proposes to establish degrees of doctor in various faculties which will be open to graduates of any university who have continued higher studies or research up to an adequate standard for at least two years after taking their first degree. Sir Richard Lodge, professor of history in the university, in making the announcement at the graduation ceremony last week, said that henceforward the place for research in education, as distinguished from its place in the lifework of the specialist, would be in the early years after the first graduation, and the new degrees would serve as an encouragement and a reward; but a further purpose was to attract to British universities the young graduates from the United States, from the Overseas Dominions, and from allied countries on the Continent who had hitherto been in the habit of going to Germany. He went on to point out that if the British universities were to attract graduates from outside they must be able to offer not only a degree, but also a training and facilities for study and research. That would involve considerable expenditure, and the universities would make a claim upon the Government for financial assistance. The English universities were to have an opportunity of stating their demands for assistance to the Government, and he hoped that Scotland would not be backward in estimating its needs and formulating its demands. The other Scottish universities will probably put forward before long proposals similar to those made in Edinburgh, and it is understood that the universities of France and of Italy will follow the same policy.

MEDICAL APPEAL FOR REGRADING.

Medical men rendered liable to military service under the new Military Service Act are examined medically by special National Service Medical Boards. The question has arisen as to what a medical man dissatisfied with his medical grading by the National Service Medical Board can do. The British Medical Association has been in communication with the Ministry of National Service and the Local Government Board on this matter. The former department states that a medical man has in the matter of appeal for regrading the same rights as any ordinary citizen, and this right of appeal is determined by the regulations of the Local Government Board. The Local Government Board has informed the Association that "a medical practitioner who is aggrieved by his examination and grading by a National Service Medical Board . . . is in the same position as any other man liable to military service. He may make an application to the Appeal Tribunal for the district in which he lives for leave to be re-examined and graded by the medical assessors. The application is required to be made not later than five clear days after the date on which written notice of his grading by the National Service Medical Board is given or sent to him, unless the Appeal Tribunal, for good reason shown, allow an application to be made after that period." Medical assessors are appointed by the Local Government Board in England and Wales, and by the Scottish Office in

Scotland. Three medical assessors must consider the case, and the grade must be settled by them in consultation. Application for medical re-examination must be made on a form, copies of which can be obtained from the Secretaries of the Central Medical War Committee, 429, Strand, London, W.C.2. Such examination, with a view to regrading by the medical assessors, is, however, quite different from re-examination by a National Service Medical Board. If a practitioner desires to be re-examined by a National Service Medical Board, the Ministry of National Service is usually willing for this to be done upon application being made to that department.

Medical Notes in Parliament.

Ministry of Health.—On the motion of Lord Willoughby de Broke, the House of Lords adopted a resolution, on July 17th, urging the Government to introduce at an early date a bill to constitute a Ministry of Health. Viscount Peel, who spoke for the Government, did not give a definite undertaking, pointing out that health administration was so all-pervading that it might be difficult to concentrate all the duties connected with it under one authority. He referred to the work of the Local Government Board and its relations to the Poor Law, to the medical side of the work administered by the Board of Education, to the information obtained by the National Service Boards, and to the factory administration of the Home Office. While not resisting the resolution he hoped the expression "at an early date" would, in view of the complexity of the matter, affecting so many departments, receive a very large and liberal interpretation.

Medical Certificates for Insured Men called up for Examination.—Mr. Albion Richardson, on July 11th, asked whether the Insurance Commissioners were disposed to make arrangements to enable a man summoned to appear before a medical board, and who could not afford to pay a fee to his panel doctor for a certificate stating his medical history, to obtain such a certificate free of charge. Colonel Gibbs replied that the furnishing of such a certificate would be entirely outside the scope of a medical practitioner's agreement for services under the Insurance Acts, and he would therefore be under no obligation to furnish it. Moreover, it was a fundamental principle that any information as to the state of health of an insured person which might come into possession of the doctor by whom he was attended under the provisions of the Insurance Acts was strictly confidential, and was to be used for insurance purposes only. In these circumstances it did not appear possible that such an arrangement as was suggested could be made under the Insurance Acts or paid for out of the insurance funds. Mr. Richardson, being dissatisfied with this reply, said that he would put down a further question and would address it to the Prime Minister.

The Number of Medical Students.—Replying to Mr. Holt, Sir A. Geddes said there were at present in the United Kingdom 5,380 male medical students and 2,250 female medical students at work in the schools. The male students freshly registered in 1917 numbered 1,378, as against 1,366 in 1914. Administration arrangements providing for the safeguarding of the supply of male doctors for the next five years were in force, and there did not appear to be any ground for anxiety.

Maternity and Child Welfare Bill.—On report in the House of Commons on July 12th, Mr. Hayes Fisher, in accordance with promises made by him during the Committee stage, submitted several amendments.

The first related to the establishment of maternity and child welfare committees by councils. It had been urged in debate that county councils should be allowed to use their Public Health Committees if they so desired, and that other local authorities might also wish to do so, or to adapt them for the purpose, and should have the discretion. Mr. Hayes Fisher therefore proposed it should be set forth that the Maternity and Child Welfare Committee "might be an existing committee of the council, or a subcommittee of an existing committee." This was agreed to.

The next amendment was as to co-option. Clause II provides that not less than two-thirds of the members of every Maternity and Child Welfare Committee shall consist of members of the council; and it went on to require the council to co-opt other members. Mr. Hayes Fisher now proposed to substitute the word "may" for "shall," so as to leave co-option a voluntary matter, the feeling in the House being that additions might not always be necessary, nor desirable. The change, however, was subject to the provision that at least two members of the committee should be women. Thus, if the membership within the council did not furnish this representation of women on the committee, it would be obligatory to co-opt at least two women. These amendments were also agreed to, and the bill, with a few alterations of detail, was reported to the House.

Regulation 40 D.—Mr. Lees Smith asked the Home Secretary whether he would issue instructions that women charged under the new Regulation 40 D of the Defence of the Realm Act should in all cases be informed that there was no power to compel them to submit to a medical examination against their will. Sir George Cave replied that he had found no sufficient reason for issuing an instruction as proposed. A woman was asked if she consented before the examination took place.

Extra Rations for Invalids.—In answer to Mr. Watt, Mr. Parker (for the Food Controller), on July 11th, said that the new procedure whereby Food Control Committees would have power to deal with applications for extra rations in the extended list of diseases and with applications for white flour in certain cases would come into force with the introduction of national rationing on July 14th. After that date only exceptional cases need be referred to the Ministry. Should any cases arise in which life would be endangered by delay, the local committee would have power to deal with them under the special provision made for cases of grave emergency.

Medical Treatment in Elementary Schools.—On report on the Education Bill, on July 15th, Mr. Herbert Fisher proposed an addition to the second clause rendering it compulsory for local education authorities to provide medical treatment in public elementary schools. Under existing law a local education authority was compelled to provide inspection and was empowered to provide treatment, but as a matter of fact only 39 authorities out of 318 had not provided treatment in some form or other. No doubt it would have a general effect in stimulating local education authorities to provide more medical treatment than they had already done. He thought it would be generally agreed that it would be possible for an education authority to arrange for a system of treatment which would not impose any fresh charge. For instance, an authority might invite the medical practitioners of its area to establish a cheap contract practice among the children of the poor, and under the Education (Administrative Provisions) Act, 1907, a parent who could afford to pay for treatment must do so. It was therefore quite possible that this duty might be carried out in any given area or all areas without any increase of charges. On July 16th, when the bill was recommitted, the amendment, along with several others, was inserted. The bill has now passed through all its stages in the Commons. The intention was that it should not be taken in the Upper House until after the recess; but as it is available for consideration by the Peers earlier than was expected, it may possibly be dealt with by them before the adjournment, which will probably take place at the end of the first week in August. The bill was read a first time in the House of Lords on July 17th. Lord Curzon said that he hoped the House might be able to pass the measure through all its stages before adjourning on August 8th.

Gratuities of Temporary R.A.M.C. Officers.—Sir Watson Cheyne addressed a lengthy question to Mr. Forster on July 15th as to the payment of gratuities to army officers holding medical temporary commissions. He put it that a medical officer now over the military age joined the Royal Army Medical Corps in 1915 voluntarily on a contract for a year at 24s. a day and £60 gratuity at the end of the year, payments of which sums had been made; that the contract was renewed for 1916 for a year with the same result, but that in 1917 this medical officer was asked to renew the contract until the termination of the present emergency, or until his services were no longer required, on the same terms as before, both as to pay and gratuity, but at the end of the year was told that the gratuity would not be paid until the end of the war. Mr. Forster replied that gratuities were usually paid at the termination of service, and that renewal contract for temporary service with the Royal Army Medical Corps contemplated payment on completion. The question, however, was being further considered. Sir Watson Cheyne asked whether the gratuities would carry interest while the matter was being considered. Mr. Forster said that the whole question of the date on which the gratuities became payable was receiving attention.

1914 Star and Hospital Ship Service.—In reply to Colonel Sir Hamar Greenwood, on July 15th, Mr. Macpherson said that it had been decided that the personnel of hospital ships were not entitled to the award of the 1914 star by virtue of the service thereon; he undertook to inquire into the case of a ship used as a base hospital.

THE WAR.

VANGHETTI'S OPERATION.

The Utilization of the Muscles of a Stump to Actuate Artificial Limbs.

From the time when Baliff in 1835 produced an artificial arm, which enabled its wearer to move one or more artificial fingers and to grasp objects, surgeons and mechanicians interested in prosthesis have striven to produce an efficient substitute for the lost hand. Although the attainment of anything approaching to perfection is obviously hopeless, notable results have been achieved. Any one who has seen a well-trained expert demonstrating such an arm and hand as the Carnes must admit that a large measure of success has been attained. But only a few persevering and gifted individuals can hope to produce such results.

Fig. 1.—"Peg" motors and rings.

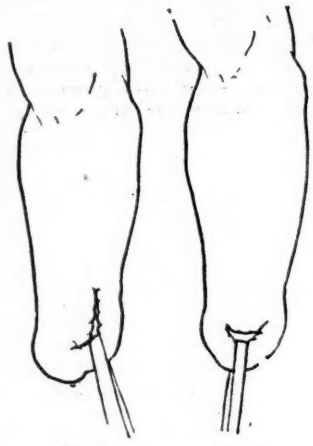

Fig. 2. Fig. 3.

Figs. 2 and 3.—"Loop" motors.

Most of the mechanical arms and hands depend upon movements of the upper segment of the amputated limb or of the chest or the sound upper extremity. Obviously such an arrangement must hamper more or less the use of the sound limb. This consideration has led to the search for means of actuating the artificial hand which shall be intrinsic to the stump. When an amputation has been performed, the remaining muscles of the amputated segment which had their insertions in the lost part become useless. Worse than that, they are often a hindrance to the successful fitting of what is technically termed a socket or bucket, which in some cases cannot be satisfactorily adapted until the muscular tissue has slowly wasted away from disuse. Indeed, in some cases of short stumps, surgeons have thought it wise to anticipate physiological wasting, and to remove them by operation. Typical cases of this kind are found in the flexor muscles of the elbow, wrist, and fingers in amputations of the forearm, and in the gastrocnemius and soleus in amputations of the leg below the knee. All these may be called intrinsic muscles of the stump.

In the year 1899, after the disastrous Erythrean campaign, in which many Italian soldiers were barbarously mutilated by the Abyssinians, Dr. Vanghetti turned his thoughts to these superfluous muscles and sought a means of utilizing them and so of freeing the trunk and the sound limb from the constraint of the harness which the use of the extrinsic muscles for this purpose entailed. As Professor Putti has pointed out in his lecture, published recently in our columns,[1] and in his other publications,[2] Dr. Vanghetti is not a surgeon, and had no opportunities of personally putting his theories to the test of actual practice, and until this war produced its hosts of amputated, only about twenty cases had been treated by his method in Italy.

It is true that the idea of making use of the muscles and tendons of an amputation stump by connecting them with the working parts of an artificial hand had been mooted by Beaufort and Larrey in Paris as long ago as 1867, but nothing had come of their suggestions until Vanghetti, in 1906, published his monograph entitled *Plastica e prothesi cinematiche*, in which he described various methods of procedure. Ceci of Pisa put Vanghetti's suggestions to the test of practice and performed three operations soon after the appearance of Vanghetti's work, but his results were not striking. Elgart, Nagy, Korte, and Payr and Witzel recorded operations of the same kind, but they were not attended by much practical success.

Before Italy joined in the war Italian surgeons had little opportunity of applying Vanghetti's principles, and meanwhile Sauerbruch of Zurich took up the idea, and having entered the German service published in 1915[3] an article describing a case in which he had operated at Griefswald with a promising result. Since that time he has further pursued the subject, and has published a monograph on the voluntarily movable artificial hand.[4] Although, owing to accidental circumstances, the Germans thus got the start, ever since Italy declared war and the inevitable result in the form of amputations followed, Italian surgeons have been busy putting into practice the principles of Vanghetti. Professor Putti has already operated upon upwards of fifty cases with most encouraging results. In his lecture, to which reference has already been made, he has described the methods he has found useful. Those readers of the Journal who had not the advantage of hearing him and of seeing his apparatus, models, and moving pictures, may obtain clear ideas on the subject by studying the illustrations which, by Professor Putti's courtesy, we are now able to place before them.

Fig. 4.—Hinged ring and connexions.

The tendons or muscular masses, covered with skin, which are artificially prepared and serve as means of conveying motion to the prosthetic appliance, are called "plastic motors." These are of two kinds, namely, the Clava or peg, and the Ansa or loop. The first kind is shown in Fig. 1 and the second in Figs. 2 and 3. The hinged ring of metal which is clamped on to the plastic motor is shown with its connexions in Fig. 4. It is also shown as applied to clava motors in Fig. 1.

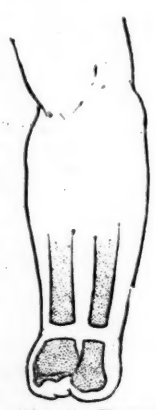

Fig. 5.—Formation of artificial joint in forearm.

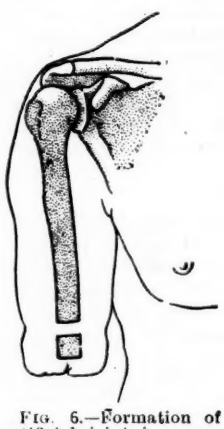

Fig. 6.—Formation of artificial joint in upper arm.

Fig. 7.—Hinged ring in position on artificial joint shown in Fig. 6.

A similar appliance or a double hook may be used with loop motors.

The first criticism of this procedure which occurs to the reader of Vanghetti's or of Putti's papers is the obvious probability of skin troubles from the constant pressure and friction of the ring upon the skin of the motor. That criticism has also been made by authoritative German surgeons upon Sauerbruch's proposals. Professor Putti has, however, assured us that in practice trouble has not

been experienced from irritation or sloughing of the skin covering the motor. Another *a priori* criticism is based upon the difficulty of securing sufficient mobility in the motor. The normal flexors, and to a less extent the extensors, of the fingers have a great range of movement, and the distance between the attachment of the tendon and the proximal attachment of its muscle may vary by as much as two inches during some of the movements of which the finger is normally capable. Such mobility can scarcely be hoped for in any of the plastic motors, but yet sufficient range of movement may be secured to produce valuable functional results.

The ansa or loop motors must obviously give less range of movement than is obtainable with the clava motors, and they do not so readily lend themselves to the production of movements in two opposed directions, such as those of flexion and extension. The loop in Fig. 3 is designed to produce this double movement. Figs. 5 and 6 show diagrammatically the way in which a new joint is formed in the cases of the forearm and upper arm respectively, and Fig. 7 shows the hinged ring clamped on to the last-named stump.

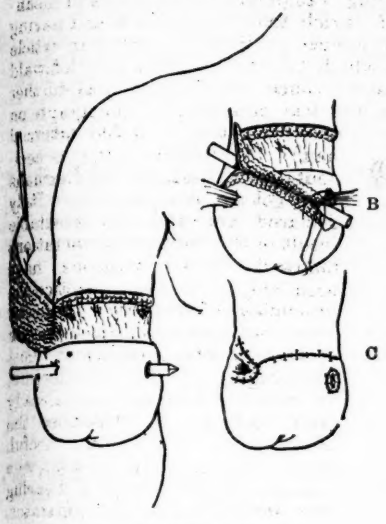

FIG. 8.—Tunnelization of upper arm stump (flexors only).

FIG. 9.—Rod and connexions for tunnelization.

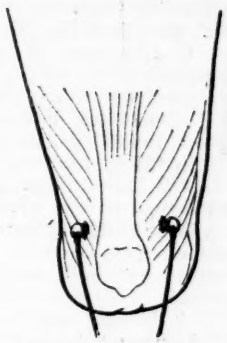

FIG. 10.—Tunnelization of quadriceps tendon. Rod *in situ*.

To Vanghetti's methods Sauerbruch has added another way of using the stump muscles, which is known as tunnelization. Instead of isolating a muscle or a group of muscles and covering their tendons with skin, as in the Italian clava and loop motors, a passage is bored through the selected part of the limb, and lined with a flap of skin which is stitched up into a tube with the epidermic surface inwards. This tube is then passed through the passage in the muscles, and fixed in place with sutures. In Fig. 8 A shows the tunnel bored, and the skin intended to form its lining already dissected up; B shows the skin being sewn into a tube round a sound, while the tunnel is occupied by a strip of gauze; in C the lining has been passed through and sutured at its ends, and the edges of the gap in the skin which has been caused by the dissection of the flap have been drawn together with sutures. Fig. 9 shows the rod intended to be passed through the tunnel, and its attachments for connexion with the artificial hand. Fig. 10 shows a tunnel through the quadriceps tendon with a rod in position.

On paper this is all very pretty, and it is still more attractive in Sauerbruch's monograph, which is admirably illustrated by a large number of drawings, but *not* by a record of a large number of successful cases. Any surgeon who has had experience of plastic procedures will foresee difficulties in maintaining the nutrition of the long flap (in which the lines of blood and nerve supply are largely cut across), and in bringing together the edges of the gap caused by its removal, without dangerous tension and inconvenient traction upon neighbouring parts.

It will probably be found that there is not a great field for this operation in the lower extremity. As far as we know, it has only been applied in the case of the quadriceps femoris, and there by tunnelization, and the results shown by Professor Putti did not seem to be better than those to be easily obtained without its aid by wearers of artificial limbs of modern type. On the other hand, flexion of the artificial knee-joint seemed to be limited by the attachment of the prosthesis to the quadriceps tendon. In the upper extremity there is probably a much larger field of usefulness awaiting the surgeon.

It might be made a reproach to British surgery that Vanghetti's method has not been tried here, but the preoccupation of many surgeons with much necessary routine work, and the reluctance of patients already sorely tried by many operations to submit to yet another, which must appear to them largely as an experiment, may be pleaded in defence against a charge of want of enterprise.

It is probably upon surgeons at the front, in casualty clearing stations and wherever primary amputations are performed, that the burden of making this method a practical success in the British army will really lie. In many cases of amputation redundant healthy skin and superfluous muscle substance and tendons are removed in order to produce a neat stump. These remnants would often prove invaluable in the performance of Vanghetti's operation at a later stage. Indeed, in aseptic cases it may be feasible, as Professor Putti has said, to perform the operation as part of a primary amputation. In conclusion, we would ask if it is yet too late to find a better name than "cinematization" for Vanghetti's method. The word is not only cumbrous and of doubtful legitimacy in its etymology, but it cannot fail to suggest the sensational drama of the moving picture. We should prefer to see the name of its inventor permanently associated with the method as "Vanghetti's method" or "Vanghetti's operation."

That the Hun will call it by the name of a German is a foregone conclusion, but we may leave him, in Bismarck's elegant phrase, to "stew in his own juice" of dishonest Chauvinism.

REFERENCES.

[1] BRITISH MEDICAL JOURNAL, June 8th, 1918, p. 635. [2] *La Chir. d. Organi di Movimento*, vol. i, p. 419; vol. ii, p. 1. Also Vanghetti, ibid., vol. i, pp. 71, 400; vol. ii, p. 1. [3] F. Sauerbruch, *Medizinische Klinik*, Berlin, October 10th, 1915, p. 1125. [4] *Die Willkürlich bewegbare künstliche Hand*, von F. Sauerbruch; Berlin, Julius Springer, 1916.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Died on Service.

LIEUT.-COLONEL W. MCCALL, R.A.M.C.(T.F.).

Lieut.-Colonel William McCall, R.A.M.C.(T.F.), was reported as having died on service, in the casualty list published on July 10th. He was educated at Glasgow University, where he graduated M.B. and C.M. in 1892, after which he went into practice in Birmingham. He held a commission in the 1st South Midland (Birmingham) Field Ambulance, in which he attained the rank of major on August 26th, 1914, and had been promoted to lieutenant-colonel during the war.

CAPTAIN J. ANDERSON, R.A.M.C.

Captain J. Anderson, R.A.M.C., whose death was announced in last week's BRITISH MEDICAL JOURNAL, died at Fort Sandeman, Baluchistan, after a short illness, on May 17th.

CAPTAIN R. A. SILLAR, A.A.M.C.

Captain R. A. Sillar, Australian Army Medical Corps, was reported as having died on service, in the casualty list published on July 13th.

LIEUTENANT L. F. JAMIESON, R.A.M.C.

Lieutenant L. F. Jamieson, R.A.M.C., was reported as having died on service, in the casualty list published on July 10th. He took a temporary commission in the R.A.M.C. towards the end of 1917.

Lost at Sea.

LIEUT.-COLONEL T. H. MACDONALD, C.A.M.C.

Lieut.-Colonel Thomas Howard Macdonald, C.A.M.C., was born at Port Mulgrave, Nova Scotia, December 15th, 1877, and graduated at Bellevue Hospital Medical College, New York, in June, 1900. Prior to joining the C.A.M.C. he was in practice at Port Hawksbury, Nova Scotia. He was an active member of the Canadian Militia, in which he held the rank of major before the outbreak of the present war. He came overseas in December, 1915, and served in France with the Canadian Corps from August, 1917, to March, 1918, and on returning to England was appointed to the command of H.M.H.S. *Llandovery Castle*. His name appears among those missing after the vessel was torpedoed on June 27th.

MAJOR G. M. DAVIS, C.A.M.C.

Major Gustavus Mitchell Davis, C.A.M.C., was born at York, Ontario, on January 8th, 1874, and graduated in medicine from the University of Toronto in 1901. He was in practice at Welland, Ontario, came overseas with the First Canadian Contingent in September, 1914, and went to France in May, 1915. He joined the 5th Canadian Battalion as M.O. in time to take part in the battle of Festubert, and was subsequently M.O. to King Edward's Horse. After leaving France he was attached for a time to the office of the D.M.S. Canadians in London, and subsequently to the Medical Board of the A.D.M.S., London area. On April 11th, 1917, he was appointed M.O. upon the hospital ship *Letitia*, and given his majority. When this was wrecked on the coast of Nova Scotia in August, 1917, he rendered distinguished service in the care and rescue of patients from the wrecked vessel, and in the absence of any military decoration which could be granted in recognition of his conduct on this occasion the Secretary of State for War directed that the information be conveyed to him that he and the General Officer Commanding were fully sensible of the excellence of his service. Later he served in the same capacity upon H.M.H.S. *Araguaya* and H.M.H.S. *Llandovery Castle*, and is among those missing after the *Llandovery Castle* was torpedoed on June 27th.

MAJOR W. J. ENWRIGHT, C.A.M.C.

Major William James Enwright, C.A.M.C., was born at Port Daniel, P.Q., in February, 1873, and graduated in medicine at Laval University in September, 1897. He was sent to France as registrar and adjutant of No. 8 Canadian General Hospital, and served with that unit till he was evacuated to England as a casualty some time in March, 1918. After a period of hospitalization in London, and at the Canadian Officers' Convalescent Hospital at Matlock Bath, he was posted to the *Llandovery Castle*, and was lost on returning from his first trip on June 27th.

CAPTAIN A. V. LEONARD, C.A.M.C.

Captain Arthur Vincent Leonard, C.A.M.C., was born at Warkmouth, Ont., October 29th, 1889, and graduated in May, 1911, at the University of Toronto. He took a prominent part in athletics during his university course. He came overseas in September, 1915, and went to France in November, 1915, where he served as M.O. of various units at the front. On returning to England from France on October 27th, 1917, he was appointed, in December, 1917, to H.M.H.S. *Araguaya*, and in March, 1918, to H.M.H.S. *Llandovery Castle*. His name appears among those missing when that ship was sunk by a torpedo on June 27th.

CAPTAIN G. L. SILLS, C.A.M.C.

Captain George Luther Sills, C.A.M.C., was born at Tweed, Ont., on March 14th, 1888. While a student in medicine at Kingston University he joined the C.A.M.C. as a private, and served overseas for one year with the 5th Stationary Hospital, afterwards the 7th General Hospital. He returned to Canada to resume his medical studies in April, 1916, and graduated in November of the same year. He came overseas as captain C.A.M.C. in March, 1917, and was serving on H.M.H.S. *Llandovery Castle* when she was torpedoed on June 27th, 1918.

Wounded.

Lieut.-Colonel A. H. Moseley, D.S.O., Australian A.M.C.
Major J. A. Pridham, M.C., R.A.M.C.
Captain H. M. Drake, R.A.M.C. (temporary).
Captain F. H. Goss, R.A.M.C.(S.R.).
Lieutenant W. S. Gross, R.A.M.C. (temporary).

Missing.

Captain W. A. Rees, R.A.M.C.

Prisoners of War.

Captain J. M. Mackenzie, M.C., R.A.M.C.
Lieutenant J. Findlay, R.A.M.C. (temporary).

DEATHS OF SONS OF MEDICAL MEN.

Badcock, Benjamin Morley, Second Lieutenant Notts and Derby Regiment, only son of Dr. B. Badcock of Staveley, Chesterfield, killed in action on July 9th, 1918, aged 20 years. He was on the electrical staff of the Staveley Coal and Iron Company when called up for training, joining the Inns of Court O.T.C., and received his commission in November, 1917. He proceeded to France on April 11th, 1918.

Pollard, Wilfred Walter, Second Lieutenant R.A.F., only son of Dr. and Mrs. W. H. Pollard of Birmingham, died in R.A.F. hospital from illness contracted on active service on July 5th, aged 19. He was educated at Sidcot School (Somerset), and Leighton Park School, Reading. He was gazetted on June 5th, 1918, and sailed for France the following day.

[We shall be indebted to relatives of those who are killed in action or die in the war for information which will enable us to make these notes as complete and accurate as possible.]

HONOURS.

D.S.O.

Lieut.-Colonel A. R. Henchley has received the D.S.O. as an "immediate award" in connexion with the recent action in the Champagne district.

The following is a continuation of the list published in the JOURNAL of July 13th (p. 45) of the acts of conspicuous gallantry and devotion to duty for which the decorations announced in the BRITISH MEDICAL JOURNAL of February 9th, p. 187, were awarded:

Military Cross.

Lieutenant (temporary Captain) William Wyllie MacNaught, R.A.M.C.

He organized a bearer party during an action, and collected and cleared many wounded under heavy shell fire. His prompt and gallant action saved many lives.

Captain James Grant MacNeill, C.A.M.C.

He worked unceasingly in the open attending to the wounded under heavy shell fire. During a gas shell bombardment he adjusted his own box respirator on a wounded sergeant, and obtained others for a number of stretcher cases who were unable to help themselves. His coolness and courage were a splendid example to all, and undoubtedly saved many lives.

Temporary Captain Arthur Griffith Maitland-Jones, R.A.M.C.

During the operations he repeatedly reconnoitred the roads under heavy shell fire. By his example and leading he established communication with the most forward dressing stations, and succeeded in bringing up his ambulances and rapidly evacuating the wounded from very exposed positions.

Temporary Captain James Manuel, R.A.M.C.

During an enemy attack he showed the greatest courage in attending to wounded men who were lying in shell holes exposed to enfilade machine-gun fire. With complete disregard of his own safety he went from one shell hole to another attending to the wounded, and continued at this work after he had been wounded himself.

Lieutenant John Marshall, R.A.M.C.(S.R.).

When in charge of stretcher squads, he succeeded in evacuating all the wounded during a critical period of a withdrawal from a village, frequently going forward beyond the firing line in order to accomplish his task.

Temporary Captain James Allen Montgomery, R.A.M.C.

On his own initiative he organized a line of stretcher-bearers to search "No Man's Land." He personally took charge of the party, and was often under fire and within a few feet of the enemy.

Temporary Lieutenant David Assur Henry Moses, R.A.M.C.

He worked continuously at his aid post during three days' operations under heavy shelling. Frequently shells dropped close by, killing and wounding several men, but he remained at work and showed the utmost indifference to danger.

Captain George Morris, R.A.M.C.(S.R.).

He moved his aid post forward and worked there ceaselessly day and night until the battalion was relieved. The aid post three times sustained a direct hit from an enemy shell, but he immediately found another aid post, and continued to dress the wounded under continual shell fire.

Temporary Lieutenant Evan Edward Owens, R.A.M.C.

He carried on his work in a crowded aid post under continuous shell fire with the greatest coolness and determination. Though blinded by gas, he continued for four hours to supervise the treatment of stretcher cases.

Captain Harold Dobson Pickles, R.A.M.C.

While in charge of bearers when a number of wounded were lying in a cellar and the adjoining building, in which a number of "P" bombs and S.A.A. were stored, was set on fire, he at once went to extinguish it and remove the ammunition. While doing so he, a N.C.O., and a man were wounded, but he got them both under cover. An hour later a second fire occurred, and he again went out to extinguish it. For three days he worked without rest superintending the evacuation of the wounded.

Captain John Alexander Pridham, R.A.M.C.(S.R.).

He was in charge of an advanced dressing station where there were a large number of wounded when the enemy attacked. The task of removing the wounded was an extremely difficult one owing to the proximity of the enemy and heavy shell and machine-gun fire, but he carried it out successfully, remaining on the spot until all the wounded had been evacuated. By his courage and devotion to duty he was the means of saving many lives.

Captain William Robertson, R.A.M.C.

He attended to the wounded in the open during an attack when the battalion was held up by heavy machine-gun and rifle fire and several casualties occurred. When two companies were cut off by heavy machine-gun fire and sustained casualties, he volunteered to try and reach them. His conduct throughout was most courageous.

Temporary Captain Lionel Matthew Rowlette, D.S.O., R.A.M.C.

He worked untiringly attending to the wounded under very heavy fire throughout the whole day, and set a magnificent example of courage and coolness to all.

Temporary Captain Cedric Russell, R.A.M.C.

He worked in the open attending to the wounded during an engagement, with complete disregard of danger under heavy fire.

Temporary Captain Robert Rutherford, R.A.M.C.

He worked continuously day and night at his aid post under continual shell fire. When the aid post had twice sustained direct hits and he himself was suffering from severe concussion, he established a new post and remained at work under heavy fire.

Captain Wesley Herbert Secord, C.A.M.C.

When in charge of the evacuation of the wounded from the forward area, during a heavy bombardment of gas and other shells, he made a tour of all the bearer posts to ensure that all antigas measures were being employed. He attended to wounded men in the open during the bombardment, with complete disregard of danger. His coolness and courage were a splendid example to all.

Captain William Ewing Sinclair, C.A.M.C.

When in charge of bearers at the regimental aid post he worked for three days and nights attending to the wounded, under heavy fire and in the face of great difficulties. Though suffering severely from the effects of gas he remained at duty and set a magnificent example of courage and coolness to all.

Temporary Captain Brian Herbert Swift, R.A.M.C.

When the front line was driven back close to the battery positions, he moved about throughout the day from one battery to another, wherever his services were needed, with utter disregard of danger under heavy fire. He remained on the spot until the batteries had withdrawn, and was the last to leave the position. He set a splendid example of courage and determination.

Captain Arthur Peregrine Thomson, R.A.M.C.

He worked untiringly and with utter disregard of danger, attending to the wounded under heavy fire for several days during an engagement. It was entirely due to his efforts and example that a large number of wounded were safely evacuated.

Temporary Captain George Dibbs King Waldron, R.A.M.C.

When in charge of a party of bearers, though several times blown over by bursting shells, he succeeded in evacuating all the wounded of the brigade. On one occasion he assisted to carry a stretcher case through a heavy barrage. He continued to work till utterly exhausted.

Captain Douglas Larmer Wall, R.A.M.C.

He attended the wounded under heavy shell fire in most exposed positions. He showed great courage and determination.

Captain James Anderson Young, R.A.M.C.

When the building in which a number of wounded were lying was heavily shelled, with the assistance of another man he succeeded in carrying all the wounded into a cellar, though shells were continually bursting in the building. He showed the greatest courage and determination.

Captain James Carruthers Young, R.A.M.C.(S.R.).

While in charge of an advanced dressing station and when the village was continuously shelled he personally superintended the removal of many of the wounded to a safer position. During the night he had them all evacuated and established a new dressing station.

FOREIGN DECORATIONS.

The following members of the medical profession are included in the list of recipients of the Croix de Guerre conferred by the King of the Belgians for distinguished service during the course of the campaign (special Supplement to the *London Gazette*, July 12th):

Colonels: Courtenay C. Manifold, C.B., C.M.G., I.M.S., Arthur E. Ross, C.M.G., C.A.M.C.

Lieut.-Colonels: Henry C. R. Hime, D.S.O., R.A.M.C., James R. Neil, N.Z.M.C.

Major James H. Wood, C.A.M.C.

Captains (acting Lieut.-Colonels): William Tyrrell, D.S.O., M.C., R.A.M.C.(S.R.), William G. Wright, D.S.O., R.A.M.C.

Captains: Francis D. Annesley, R.A.M.C.(S.R.), Colin C. Simson, M.C., A.A.M.C.

Temporary Captains: Andrew Climie, R.A.M.C., Roland A. H. Fulton, R.A.M.C., G. D. McClean, R.A.M.C.

NOTES.

AUXILIARY HOME HOSPITALS.

THE total number of auxiliary hospitals provided at home by the British Red Cross Society, the Order of St. John, the Joint War Committee, and the Territorial Force Association appears to be 1,484, containing 84,689 beds. They are distributed as follows:

Command.	British Red Cross Society		Order of St. John.		Joint War Committee.		Territorial Force Association.	
	Hosps.	Beds.	Hosps.	Beds.	Hosps.	Beds.	Hosps	Beds
Aldershot ...	—	1,428	—	—	—	—	—	—
Eastern ..	—	16,419	58	4,185	3	346	16	1,166
Irish	—	21	1	15	25	1,564	—	—
London ..	—	6,473	3	274	12	381	—	—
Northern'..	—	6,741	89	4,896	—	—	2	31
Southern ...	—	17,216	29	2,179	10	518	2	151
Western ...	—	16,150	55	3,918	7	618	—	—
Total ..	1,172	64,448	235	15,467	57	3,427	20	1,347

In addition, the Admiralty has accepted a number of hospitals—through the British Red Cross Society, 9 hospitals with 606 beds; through the Order of St. John, 3 hospitals with 334 beds; and through the Joint War Committee, 1 hospital with 12 beds (in Ireland).

The Joint War Committee has recently decided to present to the American Red Cross a fully equipped hospital of 500 beds for the sick and wounded of the American army in France—a hut hospital which, benefiting by the experience gained since the war began, will, it is hoped, be the finest of its kind, in being erected on a site in Windsor Great Park granted by the King.

UNQUALIFIED TREATMENT FOR SOLDIERS.

On December 12th last an Army Council Instruction, No. 1802 of 1917, was issued, dealing with the treatment of officers and soldiers by unqualified practitioners, as follows:

1. An officer or soldier who may wish to consult or obtain treatment from an unqualified practitioner at the latter's residence may be permitted to do so at his own risk and expense.
2. Before permission is granted to visit such practitioner he must sign a statement to the effect that he fully understands that no liability for any expense incurred during the treatment, or for any unfavourable effects that may arise as a result thereof, will be admitted as a charge against public funds.
3. Before the officer or soldier first visits the unqualified practitioner he must be examined by two medical officers, and a clear statement made out of his condition. This statement will be retained for reference in the military hospital in which the patient is accommodated.
4. Accidents or untoward sequelae, the result of treatment by an unqualified practitioner, will not be regarded as giving the individual any claim to gratuity or pension.

This instruction was modified by a War Office letter of April 28th, 1918, stating that "no obstacle will be placed in the way of any officer or soldier who desires to avail himself of the services of a practitioner in manipulative surgery who is not possessed of a medical qualification," but adding that the procedure laid down in the instruction must be carried out as heretofore.

CASES of amoebic dysentery have been reported as improved after intravenous injection of salvarsan, and no doubt this may sometimes be effected unintentionally, so to speak, when an amoebic carrier is treated for syphilis. Calame (*Rev. méd. de Suisse rom.*, Genève, 1918, xxxviii, 125–137) has reported the results of giving enemas to a case of proved amoebic dysentery of three years' duration which had become resistant to emetine and showed extensive ulceration of the rectum with the passage daily of ten to fifteen stools containing blood. The patient's general condition was very bad, so, instead of appendicostomy, enemas of neo-salvarsan, which in three other cases of ulceration of the rectum (one amoebic, the other two of unknown origin) had been encouraging, were tried. After the first enema blood disappeared from the faeces, and after the third there was one stool only daily. Nine enemas in all were given, the largest dose of neo-salvarsan in any one enema being 0.9 gram. Eventually there was a complete cure with a gain of 21 kilos (46 lb.) in weight.

Correspondence.

THE FUTURE OF THE MEDICAL PROFESSION.

SIR,—We are face to face with the greatest crisis in the profession—the possible establishment of a state medical service—and we are still pursuing the old dilatory wait and see policy which has characterized our proceedings through all time.

While articles are written on team practice, special departments for this, that, and the other, and so forth, men in active practice know that most of their anxiety is caused by the problem, What is to become of my capital invested in my practice? Every honest general practitioner knows that that is what is causing him anxiety.

Why not face the question at once? We know we shall not get any help or sympathy from the consultants whose work will not be touched. Medical members of the House of Commons have never been in touch with the needs of the general practitioner.

There is no one to help except each individual member of the profession whose pocket is going to be affected—pretty severely—by this new form of state control, and unless we rouse ourselves at once we shall wake up one day to find our interests have been entirely neglected.

Even at this moment public officials are doing tuberculosis work, ear work, eye work, maternity work, and, as I have heard stated, there will soon be a state medical officer to attend to diseases of the umbilicus. I am a loyal supporter of the British Medical Association and abominate the methods of the Panel Medico-Political Union. But the docile attitude of the former needs gingering with some of the fighting material of the latter.

Every other profession, and, if I may say so, trade, in the world has, by banding together, made itself strong enough to get what it wants.

If the state medical service is to come, as appears more than possible, let us at least be honest, and no longer pretend that our sole objection to its establishment is that we do not like being under the direction of other people, many of them no more competent to do the special work they are appointed to do than we are, but plainly make our view public to the world—that in no other business has it ever been decided that vested interests can be sacrificed at the will of Parliament, and that if a State Medical Service Act does ever come into force ample, just, and full compensation shall be paid to those whose incomes are crippled or impaired by its operation.—I am, etc.,

Crawley, July 13th. SIDNEY MATTHEWS.

SIR,—There is very little doubt that in the future there will be some form of state medical service, which, if managed in a careful and thoughtful way, may benefit both the public and the profession, the former by receiving better service, and the latter by being prevented from becoming overworked automatons. But this can only be effectual if medical men are treated fairly, and I hope that the resolution passed by the Sussex Branch (SUPPLEMENT, July 13th, p. 11) will not be wasted on the desert air, but that the Association will take action to secure compensation for practitioners adversely affected by any system of state medical service. When one considers that the capital invested in a practice is a doctor's chief asset, and sometimes his only one, it is self-evident that any means taken to destroy it should call for compensation. In the case of the brewing trade the Government have recognized this, and the Association will be gravely wanting if the capital losses of medical men are not treated in like manner. A man who for years has worked strenuously and increased his practice should not be robbed of the fruits of his labour.—I am, etc.,

July 14th. FAIRPLAY.

SIR,—In Sir Bertrand Dawson's comprehensive and illuminating forecast of the future of medicine there is one inapt illustration which is given pride of place. He asks: "Who would dream now of treating phthisis (*sic*) outside such a special institution or colony?" I certainly would of my own free choice in 70 per cent. of the cases, and the medical profession must of necessity treat at least 90 per cent. of all the cases outside the sanatorium.

Further, I venture to prophesy that in fifty years, and probably much sooner, the sanatorium will come to occupy the same position in any ideal scheme for dealing with tuberculosis as Greek will occupy in any ideal curriculum of an English university in the near future. Like the Greek language, it will be for the most part a delightful luxury of some small value for those who can afford to pay for it, and will never be an essential, except for a select few, who may need it urgently.

Recently I attempted, but without success, to persuade the Royal College of Physicians to appoint a committee of experts to evolve a scheme for dealing with the problem of tuberculosis on some scientific plan. I proposed the creation of a central tuberculosis institute, organized and controlled by medical experts, with the definite purpose of evolving truth out of the chaos that now reigns in our contradictory and discrepant views regarding the etiology, diagnosis, and treatment of tuberculosis. Thus expert physicians, surgeons, bacteriologists, haematologists, radiographers, financiers, and statisticians would be able to co-ordinate their labours so as to discover all that is true and discard all that is false in our present notions concerning the great problem of tuberculosis.

A Minister of Health must face the problem of tuberculosis, not as it affects isolated units, but in the aggregate. Tuberculosis cripples and disables men, women, and children in all ranks of life, but pre-eminently in the industrial classes, and we must never forget that the industrial efficiency of the human unit is our greatest national asset. Any system that can prevent tuberculosis doing its evil work will be an untold blessing. The welfare of the infant, the child, and the adult cries aloud for a victory over tuberculosis. In this conflict the sanatorium can never be or become a very valuable or decisive weapon. Whatever some physicians may say, economists, sociologists, philanthropists, and financiers will seek to find a more comprehensive, more expeditious, more convenient, more economical, cheaper, and more effective weapon than the sanatorium.—I am, etc.,

W. CAMAC WILKINSON, M.D., F.R.C.P.

London, W., July 16th.

THE INDIAN MEDICAL SERVICE.

SIR,—It will be a source of great satisfaction to every member of the Indian Medical Service to realize that at last the reasons for the acute discontent in the service are known and understood by the Secretary of State. No one reading his reply to the deputation of June 27th can fail to appreciate his sympathetic grasp of the position and to look upon it as a happy augury for the future.

Mr. Montagu alludes to the abnormal war conditions, and the friction which compulsory reversion to military duty involves. Not one word of complaint would have been heard on that ground if officers had felt that the financial and other hardships entailed by the war were being equally shared by all. Unfortunately it is not so, and the feeling in the service is very strong that in a war of already four years' duration, of which the end has never at any time been in sight, some scheme should have been evolved to ensure that the whole burden of war service should not continue to be borne by the 339 members of a service of 700 who have been recalled to military duty up to the present time. It may be admitted that the 360 who remain in civil employment are necessary to carry on the medical work of the country. It may be further admitted that some senior officers occupying administrative posts and professorships cannot be spared without detriment to the state. There are others who would probably not be passed fit for military service. There remains, however, a considerable number of officers, serving chiefly as civil surgeons, who are in no way indispensable. Unquestionably these officers should be given a chance of serving in a military capacity, and their places taken by the senior men who were recalled to military duty early in the war and may now be said to have "done their bit." Moreover, those who are, for medical reasons, unfit for service in the field, should be graded as "fit for military duty in India," and recalled for that duty alone. Many of them would welcome this as a rest from their too strenuous civil life.

The contrast between the positions of the recalled and the unrecalled is so marked that the most elementary principles of justice demand a more equal distribution of the burdens. Take, for example, the case of a recalled senior major. At the age of 40 to 45, he finds himself

reduced to pay which barely suffices for the needs of his family in England, and such unavoidable expenses as insurance premiums and pension fund subscriptions. For his own expenses there will probably remain absolutely nothing. If he is fortunate enough to have any private means or savings, he many keep out of debt for a time, but it is unlikely that he can do so through four years of war. In most instances he is entirely cut off from his family, and cannot get any leave to England. He runs the risk of death, wounds, and disease. Not improbably he is employed in uninteresting work of a routine nature, and gets completely out of touch with the curative side of medicine—a very severe handicap when he resumes his civil career.

The unrecalled men remain in full enjoyment of such "plums" as the civil side of the service affords, since there are no rivals in the field. Financially speaking, they are "on velvet." Their domestic life continues its normal course, without the added expense of two establishments. They are engaged in the same interesting and varied professional work as in pre-war times.

There would be little profit in drawing attention to these matters if they were an inevitable consequence of war, and therefore irremediable; it cannot, however, be argued that the gradual transfer of a hundred or two of civil medical officers to military service and their replacement by an equivalent number of those recalled early in the war is an administrative feat which must baffle the Government of India for the entire duration of the war.

The present position is most unsatisfactory not only to the recalled but also to the unrecalled, who feel that they are denied all opportunity of seeing active service. Hitherto the official attitude has been "sympathetic-apathetic," if I may so term it, but the time has now come when appropriate action is urgently called for. An authoritative pronouncement that this action will be taken, and the interest of those who have up to now borne the heat and burden of the day duly considered, would be welcomed throughout the entire service.—I am, etc.,

July 12th. "I.M.S."

THE ABUSE OF DRAINAGE TUBES.

SIR,—In the JOURNAL of June 29th (p. 718) Mr. Frank Hathaway has an interesting article on the abuse of drainage tubes.

After at least six years' experience of soft rubber drainage (dental dam) it is possible to emphasize the great advantages of its use. Mr. Hathaway might have gone further and pointed out the dangers of rubber tubing in producing necrosis of bone, secondary haemorrhage, and, when used in the abdomen, faecal fistula. With rubber tubing there is a constant elastic pressure exerted on the neighbouring parts, which is bound to produce pressure necrosis. Rubber tubing must be more uncomfortable for this reason than the adaptable soft material. Rubber tubing rarely drains along the centre—it is by capillarity between the tube and the soft parts; soft rubber drains by capillarity between the folds as well as the adjacent structures. They are painless and effective. In civil practice the commonest suppurative condition to treat is acute suppurative appendicitis. My practice is to make a gridiron incision, wall off the peritoneum with gauze, open the abscess and swab up the pus, remove the appendix, and drain with soft rubber, never making any counter openings unless, later, one is needed. In the last six years 135 suppurative cases have so been treated personally, and the mortality from all causes amounted to 12—about 8.8 per cent. The insertion of soft rubber to any depth in the pelvis is not so easy as rubber tubing, but the effect on the drainage and on the comfort to the patient is great.

After removal of tuberculous cervical glands, the soft rubber can be arranged so that portions may be placed at likely spots for lymph accumulation, and the drain brought out posterior to the sterno-mastoid in the hair region, while the anterior wound is sewn up.

In suppurating intermuscular wounds, such as are produced by war injuries, and septic compound fractures, Mr. Hathaway will find active and passive movements an asset in the way pus is pumped to the surface, just as, in the abdomen, getting the patients to move about early is helpful in any drainage.

Just now splints and plaster-of-Paris are the curse of the age, and there are thousands of men with stiff joints and atrophied muscles, the result of such immobilization, who would be infinitely better, and many of them perfect, had active and passive movement been carried out from the earliest date. Just the other day, for example, a patient with a septic wound of the lower and outer part of the humerus was seen by me; the bone was not fractured completely, joint and nerves were intact. He had been treated with a sling for over two months, and no movement. His elbow is now quite stiff and it will take weeks to get complete use back. It is indeed most sad to see these cases. To invent a splint is wonderful; to do without splints and encourage early movement is not wonderful, but infinitely more effective.

If surgeons were only to give soft rubber a good trial they would not resort to tubing except in a few exceptional cases.—I am, etc.,

Edinburgh, July 9th. J. W. DOWDEN.

THE TREATMENT OF FUNCTIONAL NERVOUS DISORDERS IN THE ARMY.

SIR,—Within the next few months a considerable number of members of the medical profession will be called up to serve with the R.A.M.C. Some will be men of experience attached to the consulting staffs of hospitals in London or the provinces, and many will be anxious, if possible, to do work that has some bearing on the less mechanical aspects of medicine.

Now, the present war has revealed a vast field for useful work in the treatment of those functional neuroses usually classed together under the heading of "shell shock." The War Office has initiated a system for dealing with such patients in special hospitals, under the care of officers specially selected for the purpose. Opportunities for instruction in the branch of medicine are given to those who, like the majority of the profession, are unfamiliar with the treatment of the neuroses.

As a certain number of medical men who are interested in, or have had previous experience in, this work, may be required, they should send in their names to the War Office, as soon as they are called up, stating their wish to undergo a course of training in this branch of medicine.—I am, etc.,

London, July 13th. H. H.

THE BURDEN OF COSTLY REMEDIES.

SIR,—If the administrative ineptitude of the English portion of the Insurance Commission, resulting in an unfortunate panel practitioner being mulct in the cost of serum supplied to his panel patient, is an indication of the difficulties being experienced in establishing a Ministry of Health on a sound basis one may well despair of seeing the scheme drawn by Sir Bertrand Dawson's masterly hand ever realized.

But officialism, even in the Insurance Commissions, is not ever so. My experience, having paid for serum administered to a panel patient when I was on a county panel under the Scottish Commission, had an opposite result. Not only was I refunded my outlays, but the Commission at once issued regulations placing the various serums at the disposal of Scottish panel practitioners for administration to their panel patients, even, if I remember rightly, refunding the cost of telegraphic orderings.—I am, etc.,

Darlington, July 14th. ALLAN GRAY.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

THE following medical degrees were conferred on July 13th:

M.B., B.C.—H. Morrison, R. J. Hearn.
B.C.—J. H. E. Moore.

UNIVERSITY OF BRISTOL.

THE following candidates have been approved at the examinations indicated:

FINAL M.B., CH.B.—W. P. Taylor. *Part I Only (including Forensic Medicine and Toxicology)*: F. V. Jacques.
D.P.H.—A. G. Bodman.

UNIVERSITY OF LIVERPOOL.

THE Diploma in Public Health was awarded on July 6th to the following: E. H. T. Cummings, G. H. Darlington, J. Drummond, I. J. Lipkin, H. E. Middlebrooke, K. J. Rustomjee, R. C. Watts.

UNIVERSITY OF BIRMINGHAM.

THE following candidates have been approved at the examinations indicated:

FINAL M.B., CH.B.—Class II.: Alice M. Chinn, Olive O. Hooper, Mabel E. Prosser, E. E. R. Spurway.

FOURTH M.B., CH.B. (*Forensic Medicine and Toxicology, Public Health, Therapeutics, and Special Pathology*).—Class I: Dorothy Chattaway and J. L. Taylor. Class II: E. F. Brown, Constance B. Challis, Mary D. Gilson, E. G. T. Holden, T. C. McKenzie, Doris E. F. Stanton, and Honor M. Willis. Passed in *Therapeutics, Public Health, Forensic Medicine, and Toxicology*: E. N. J. Brett. Completed examination: Margaret A. Williams (*Forensic Medicine and Toxicology*).

THIRD M.B., CH.B. (*General Pathology and Bacteriology, and Materia Medica and Practical Pharmacy*).—Class I: W. S. Adams, Doris I. Bosworth, H. Donovan, Olive M. C. Southall, Kathleen M. Tillyard, and Hilda S. Walker. Class II: Ada V. V. Allen, W. A. Bryce, Edith E. A. Cooke, A. Epstein, Gladys M. Evans, Agnes M. Frew, B. Molloy, H. T. Roper-Hall, and Mary B. Stone. Passed in *Materia Medica and Pharmacy*: Edith M. Ainscow and E. Lowe.

For the Queen's scholarship (third year) H. Donovan and Kathleen M. Tillyard were equal; that for the fourth year has been awarded to Dorothy Chattaway.

UNIVERSITY OF EDINBURGH.

GRADUATION CEREMONY.

AT the graduation ceremony, on July 11th, Professor Sir Richard Lodge read a list of military honours gained by members of the University in the service of their country. In 1917 graduates or alumni of the University had obtained 2 D.C.M.'s, 3 D.S.C.'s, 74 M.C.'s, 30 D.S.O.'s, 15 C.M.G.'s, 5 C.B.'s; and in 1918, so far as the year had gone, they had won 2 D.C.M.'s, 3 D.S.C.'s, 89 M.C.'s, 40 D.S.O.'s, 15 C.M.G.'s (including two professors), 6 C.B.'s, and 2 Victoria Crosses (including a nephew of Professor Wallace). Fully a score of women graduates and alumni had joined the Q.M.A.A.C., and a number of graduates had been made Knight Commanders and Members of the Order of the British Empire, including one lady, who was one of the Prime Minister's secretaries.

The following were the recipients of degrees:

M.D.—A. J. Anderson, R. B. Barnetson, *R. Donaldson, W. B. Drummond, R. Gardner, J. W. Keighley, †A. L. Krogh, A. L. J. Lim, W. J. Porteous, *H. D. Robb.

M.B., CH.B.—Lal Singh Anand, Dorothea I. Baird, I. A. Beckles, Z. J. de Beer, ‡W. T. Benson, C. Blake, S. Boodoosingh, G. B. Brewster, H. J. Brink, G. Buchanan, R. E. J. Burns, R. T. Carr, J. A. L. Cook, J. H. Crawford, F. Xavier Maya Das, E. D. D. Dickson, Jean D. Don, J. K. van Oosterzee Duminy, G. W. C. Dunlop, J. Edelstein, D. Fergusson, M. J. Gibson, Hassan Ali El Girby, F. Gunaratna, Sukumar Dutta Gupta, W. H. Herberg, L. C. D. Hermitte, N. Hirschman, F. Holmes, H. M. Jacobs, J. T. Johnston, A. Klenerman, D. A. Knight, D. C. Lamont, R. H. S. Langeveld, J. Bull Liggins, Teong Kyee Lwin, W. M. M'Alister, R. B. MacGregor, N. Macleod, J. M'Nabb, J. M. Macpherson, R. C. B. Macrae, Mary P. Mair, §M. Melvin, G. H. Middleton, J. C. B. Mitchell, J. S. Moroka, T. B. Moyes, A. J. Mybur h, §H. J. Parish, H. S. Percival, J. Rauch, Gertrude M. V. Richardson, Dorothy A. Robertson, J. H. L. Shapiro, C. Simpson, F. W. Simson, D. W. Sinclair, Janet S. Smith, Mul Raj Soni, Marguerite R. Stirling, May L. Walker, R. Wallace, U. G. Williams.

* Commended for thesis. † Highly commended for thesis.
‡ With first class honours. § With second class honours.

The following awards were made:—Ettles Scholarship: W. T. Benson. Beaney Prize in Anatomy and Surgery: J. K. van Oosterzee Duminy. Monat Scholarship in the Practice of Physic: H. R. Goldberg. Conan Doyle Prize: H. M. Jacobs. James Scott Scholarship in Midwifery: E. J. Burns. Scottish Association for Medical Education of Women Prize: Marguerite R. Stirling. Dorothy Gilfillan Memorial Prize: Joyce C. B. Mitchell. Pattison Prize in Clinical Surgery: R. L. Galloway. Cunningham Memorial Medal and Prize in Anatomy: R. G. M'Intyre (*in absentia*). Whiteside Bruce Bursary: Jessie Eeles.

Many of the recipients of degrees were in khaki and one of them wore the decoration of D.S.O. and the Military Cross. The Ettles prizeman was a surgeon probationer R.N.V.R. Miss May L. Walker, who received the degrees of M.B., Ch.B., also holds the M.A. and B.Sc. degrees, and is said to be the first woman to hold all three.

UNIVERSITY OF ABERDEEN.

THE graduation ceremony on July 9th was presided over by the Chancellor, the Duke of Richmond and Gordon. It was stated that the total number of graduates of the university, alumni, students, and members of the teaching staff who were not graduates, now on service for their country was 2,679.

The following were among the degrees conferred:

M.D.—Captain A. W. Hendry R.A.M.C.(T.C.).

M.B., CH.B.—*§G. S. Escoffery, †Agnes L. Semple, J. Alexander, W. Buchan, W. A. Coutts, ‡J. A. Dawson, ‡A. M. Dugan, Isabella Ferguson, A. C. Hill, Mabel G. Lawson, R. D. Lockhart, A. Mackenzie, J. W. Mann, J. Morrison, A. C. Paterson, J. A. Ross, J. C. Sleigh, Sophia K. G. Stuart, Gwendolen J. E. Wilson.

D.P.H.—Staff Surgeon A. Reah, R.N.

* With first class honours. † With second class honours.
‡ Passed fourth examination with distinction.
§ Passed fourth examination with much distinction.

The Lizars medal in anatomy has been awarded to Annie Thain and G. O. Thornton (equal). The John Murray medal and scholarship, awarded to the most distinguished graduate for M.B. in 1918, has been conferred upon G. S. Escoffery (Kingston, Jamaica).

UNIVERSITY OF DUBLIN.

TRINITY COLLEGE.

Diploma in Gynaecology and Obstetrics.—The Board and Council have decreed: (1) That a Diploma in Gynaecology and Obstetrics be established, and that the examination for this diploma be open to all registered medical practitioners who, after the date of registration, have taken out a prescribed course at Trinity College and at the Rotunda Hospital or other hospital recognized for the purpose by the Board and Council of Trinity College. (2) That the course of study shall extend over one year. That six months' residence in Trinity College and six months' residence at the Rotunda Hospital be required. (3) That instruction be given during the year's course in practice of midwifery, practice of gynaecology, anatomy of the female pelvis, elementary embryology, pathology of the female organs, and antenatal pathology. (4) That the examination for the diploma be in the same subjects.

The arrangements for the curriculum have been made by Trinity College jointly with the Rotunda Hospital.

School of Physic.

The following candidates have been approved at the examinations indicated:

FINAL MEDICAL, PART I.—*Medical Jurisprudence and Hygiene: Materia Medica and Therapeutics: Pathology*: *J. S. Quin, *T. D. Gordon, *H. Cohen, *W. T. Mickus, *H. A. Burridge, C. J. de V. Shortt, W. J. A. Russell, Eileen H. Dowse, C. J. L. Brock, W. B. Fox, S. J. Laverty, R. E. Murphy, Jessie Gilbert, Olive Baile. *Medical Jurisprudence and Hygiene: Materia Medica and Therapeutics*: J. A. Acheson, S. R. Hill, G. FitzM. Keatinge, F. W. Robertson.

PART II.—*Medicine*: A. L. Gregg, P. C. Parr, J. W. Scharff, L. Albertyn, J. G. Bird, S. C. Mitchell, L. J. P. Murphy, W. J. McClintock, D. S. Prentice, E. R. Tivy, C. G. Ambrose, B. D. Merrin, K. McG. Greer, E. J. Lyndon, Margaret Wolfe. *Surgery*: J. W. Scharff, E. F. Wilson, R. M. D. Devereux, E. E. Rollins, W. J. McClintock, Rita Henry, Captain J. E. Jameson, V. M. Synge, B. D. Merrin. *Midwifery*: Mary C. Sheppard, L. Albertyn, Ethel M. Luce, F. McG. Ferguson, R. M. D. Devereux, E. R. Tivy.

D.P.H., PART I.—*Chemistry: Bacteriology and Pathology: Physics and Meteorology*: Captain J. Beckett, E. O. Bowie. PART II.—*Sanitary Engineering: Hygiene and Epidemiology: Vital Statistics and Public Health Law*: R. A. Keane.

* Passed on high marks.

The following awards have been made: Fitzpatrick Scholarship, H. L. Parker. Medical Scholarships:—*Anatomy and Institutes of Medicine*: E. H. C. Allen. *Botany, Zoology, Chemistry, and Physics*: D. S. Spence. Henry Hutchinson Stewart Scholarships:—*Anatomy and Institutes of Medicine*: A. J. L. Snyman, E. S. Smyth (special for two years). *Botany, Zoology, Chemistry, and Physics*: Dorothy A. Daly. John Mallet Purser Medal, Captain G. H. Davis. Cunningham Medal, Edith F. Willock.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

A QUARTERLY Council was held on July 11th, when Sir George Makins, President, was in the chair.

Council Election.—The following four Fellows, elected into the Council on July 4th, took their seats: Sir John Bland-Sutton, Mr. Walter George Spencer, Mr. Ernest William Hey Groves, Mr. John Lynn Thomas.

Lieut.-General Sir Arthur Sloggett was admitted a Fellow of the College.

Diplomas in Public Health.—Six diplomas were granted jointly with the Royal College of Physicians to candidates found qualified at the recent examination.

Election of Lecturers.—The following lecturers were appointed—Hunterian Professors: Arthur Keith, Gordon Taylor, A. J. Walton, David Ligat, T. B. Layton, Alexander Fleming, E. G. Schlesinger. (Professor Keith will deliver six lectures, and the others one each.) Arris and Gale Lecturers: Edred M. Corner, Ernest M. Cowell, John C. Briscoe. Arnott Demonstrator: Arthur Keith.

Election of President and Vice-Presidents.—Sir George Makins was re-elected President for the ensuing year and Mr. W. F. Haslam and Sir John Bland-Sutton were elected Vice-Presidents.

The President reported that, in pursuance of a suggestion which had been made to him, he had taken steps to transmit the following message of greeting to the French nation apropos of the celebration of "France's Day" on July 12th in London and on July 14th in Paris:

From the President and Council of the Royal College of Surgeons of England.

BROTHERS-IN-ARMS WE GREET YOU!

Bound by ancient ties of blood and by the memories of many a gallant contest in the past, to-day we stand as one Nation united in a sacred cause.

We have before us a happy presage from the past. As the united efforts of Pasteur and Lister have laid low the tyranny of disease, so shall France and Britain conquer a tyranny still more remorseless.

Our future brightens, and shall endow Gaul and Briton with a common birthright to remain a splendid heritage for all time.

ROYAL COLLEGES OF PHYSICIANS AND SURGEONS, IRELAND.

THE Reuben Harvey Memorial Prize has been awarded to William Robert Fearon, B.A., B.Sc., for his essay on "The amylolytic properties of urine,' and a second prize has been awarded to Dr. Joseph W. Bigger for his essay on "The effects of keeping on the complementary power of guinea-pig serum."

Obituary.

JAMES GREEN, L.R.C.P., M.R.C.S.,

Late Honorary Secretary and Treasurer, Southern Branch, British Medical Association.

We regret to have to record the death of Dr. James Green of Mile End, Portsmouth, on July 14th. He had for some time suffered from cardiac symptoms, and had recently been obliged to give up his duties as Honorary Secretary and Treasurer of the Southern Branch, offices which he had held with much success during the last seven years. He received his medical education at the Manchester Royal School of Medicine, and obtained the diploma of M.R.C.S. in 1872, and that of L.R.C.P. in 1873. With regard to his subsequent career, Dr. Ward Cousins, who was President of the Association at its annual meeting at Portsmouth in 1899, when Dr. Green was secretary of the Section of Diseases of Children, tells us that soon after he obtained his diplomas Dr. Green entered into partnership with Mr. Scale, who occupied a very influential place in the social life of Portsmouth. Dr. Green, Dr. Ward Cousins continues, was a very able practitioner and warm-hearted friend, who always enjoyed the complete confidence of the whole profession in the neighbourhood.

Dr. Green had long taken an active interest in the British Medical Association. He was a member of the Central Council, and at one time chairman of the Public Health Committee. He was also an active member of the Medico-Political Committee, of the Poor Law Medical Officers' Subcommittee, and of the Medical Officers of Health Subcommittee. Dr. Green leaves a widow and family of seven sons and one daughter. His second son, Dr. Philip Green, has been a prisoner for some time in Germany. Another son is Temporary Captain E. A. T. Green, R.A.M.C., and a third is Lieutenant R. A. Green, Hampshire Regiment, both of whom have received the Military Cross.

Dr. William H. Slimon, for over thirty years a leading practitioner at Clacton-on-Sea, died suddenly of heart failure on June 18th. He was born in Scotland in 1851, the son of a Scottish doctor, and was educated at the University of Glasgow, where he graduated M.B., C.M. in 1870 and M.D. in 1895; in 1883 he took the diploma of L.R.F.P.S.Glasg. He was a vice-president of the East Anglian Branch of the British Medical Association, consulting surgeon to the Cottage Hospital, Clacton-on-Sea, of which he was one of the founders, and consulting physician to the Ogilvie Homes, Clacton-on-Sea. Among his many public activities Dr. Slimon was a justice of the peace for the counties of London and Essex, vice-chairman of the Essex County Appeal Tribunal, and chairman of the Clacton War Pensions Committee. He was in practice in New Cavendish Street as well as at Clacton-on-Sea, and, after an exceptionally heavy day in London, he was about to return to Clacton in the evening, when the fatal seizure occurred. His death is greatly regretted, not only in Clacton, but throughout East Anglia.

Dr. Lewis Stephens Lyne Liddell, of Bury, Lancashire, died on June 30th, 1918, at Llanfairfechan, after some months of illness, aged 46. Dr. Liddell graduated M.B. and C.M.Edin. in 1897, and after being house-surgeon at Bolton Infirmary, and in private practice, took over the practice of the late Dr. Charles McLaren in Bury in 1909. He was the last surviving son of the late Mr. John Liddell of Pinkie Hill House, Inveresk, by his wife, a daughter of the late Mr. Lewis Stephens Lyne. In addition to his private practice, Dr. Liddell held the appointments of vaccination officer and medical officer to the guardians of the Union of Bury. His patients of all degrees had a great regard for him—a regard gained not only by sound professional knowledge and a high ideal of professional practice, but also by his kindness and his keen interest in those whom he attended.

Sir Robert Bredon, K.C.M.G., whose death is announced from Peking, was born in February, 1846, at Portadown, Ireland, where his father, Dr. Alexander Bredon, resided. Robert Bredon graduated at Trinity College, Dublin, passed out first at Netley for the Army Medical Staff in 1867, and was appointed to the 97th Regiment. On retiring from the army in 1873 he entered the Imperial Maritime Customs, China, of which he became Deputy and afterwards acting Inspector-General. In 1910 he was appointed to the Chinese Board of Customs, but retired in deference to the wishes of the British Government. During the Boxer rising he took part in the defence of the Legations, and received the war medal and clasp. He had been the recipient of a number of foreign orders.

The Services.

AUXILIARY R.A.M.C. FUNDS.

The usual quarterly meeting of the committee was held at 11, Chandos Street, London, on July 12th, when Major Maclean was in the chair, and several members, including Major-General T. H. Goodwin, Director General Medical Services, the Honorary Treasurer, and the Honorary Secretary, were present.

From the Benevolent Branch, for the relief of children of officers of the Auxiliary R.A.M.C. who died as a result of the present war, grants were made in three cases, to the amount of £176.

Grants from the Relief Branch, for the relief of the widows and orphans of the rank and file of the Auxiliary R.A.M.C., were also made.

Subscriptions and applications for relief from either Branch should be made to the Honorary Secretary, Auxiliary R.A.M.C. Funds, 11, Chandos Street, Cavendish Square, W.1.

EXCHANGE.

Captain R.A.M.C., Yorkshire—shooting, fishing, hunting with hounds—anxious to take Fellowship, seeks exchange with officer in Ireland; medical centre or near.—Address, No. 2750, British Medical Journal Office, 429, Strand, W.C.2.

Medical News.

Dr. J. C. Uhthoff has been promoted to be a Knight of Grace of the Order of St. John of Jerusalem.

In the Parliamentary Notes in last week's Journal was printed the statement by Sir Auckland Geddes with regard to new definitions for the medical grading for older men. This statement has now been issued to tribunals by the Local Government Board and the Scottish Office in a Memorandum, R. 218.

The Principal of the Royal Institute of Public Health, Colonel W. R. Smith, M.D., having been elected Sheriff of the City of London, the treasurer of the institute invites Fellows and Members to contribute to the fund which has been formed to present Colonel Smith with his chain of office.

An influential committee has been elected to advance the project of endowing a bed in the Royal City of Dublin Hospital in memory of the late Lieut.-Colonel Henry Moore, R.A.M.C. Mr. G. Jameson Johnston, F.R.C.S.I., 13, Lower Fitzwilliam Street, Dublin, is the honorary treasurer.

A meeting of the Royal Sanitary Institute will be held in the Town Hall, Ipswich, on Saturday, July 27th, at 11 a.m., when a discussion on housing will be opened by Sir Henry Tanner, and a discussion on the provision of maternity homes by Dr. A. M. N. Pringle, M.O.H. Ipswich.

The Council of Epsom College announces that there will be a vacancy for an entrance Salomons scholarship of £50 at the beginning of the Michaelmas term. The candidate must show an adequate standard of education for his age, and his financial condition must be such as to make it impossible or difficult to obtain an education at the college without the help of the scholarship. Applications should be sent to the secretary, at the office of the College, 37, Soho Square, W.1., by July 29th.

The medical practitioners of co. Derry have recently fixed a scale of fees for the medical examination of applicants for insurance policies. The minimum fee for any sum of £500 and under was fixed at £1 1s., and £2 2s. for any sum over £500. The doctors of the county have pledged themselves to adhere to the fees they have unanimously fixed, and expect that neighbouring doctors will also insist on these fees, particularly in cases in which applicants are taken into other areas to be examined with the object of getting the work done at cheaper rates.

A meeting of the Central Committee for the State Registration of Nurses was held in the Council Room of the British Medical Association, 429, Strand, on July 6th with Dr. T. W. H. Garstang in the chair. Reports were received from the honorary secretaries and the Executive Committee. Upon the recommendation of the Executive Committee the request for representation of the Irish Nursing Board, approved by the Royal College of Surgeons

in Ireland, was agreed to. Various amendments to the Nurses' Registration Bill were agreed to. Resolutions were approved recording the opinion that registration of trained nurses should be carried out by an independent nursing council, constituted by Act of Parliament, and dissociated from any one organization of nurses, such as the College of Nursing, and protesting against a clause recently inserted in the bill drafted by the College of Nursing, which provides for the registration of specialists other than male and mental nurses.

THE late Miss Grace Ross Cadell, surgeon to the Edinburgh Hospital for Women and Children, who left £47,000, bequeathed £2,000 free of income tax to the Edinburgh Hospital for Women and Children and Hospice, to endow a bed in the Maternity Department in memory of her mother, £100 to the Leith Hospital, £1,000 to the Queen's nurses in Scotland, and £300 to the Leith Branch of the Queen's nurses. She made bequests to her four foster children which, in certain eventualities, may be given in respect of the girls to help the medical education of women in the University of Edinburgh, and in the case of the boys to the Edinburgh Medical Department. The residue of the estate is to be divided equally between the Edinburgh Hospital for Women and Children and Hospice and the University of Edinburgh to help in the medical education of women.

THE National Physical Laboratory has made arrangements after consultation with the department of Scientific and Industrial Research, and in conjunction with the British Chemical Wares Manufacturers' Association, and the British Laboratory Ware Association, for testing scientific glass ware on a more comprehensive scale than hitherto. The work done will include volumetric tests on graduated vessels of all kinds, tests on the resistance of vessels to chemical action, on filter paper, porcelain ware, etc. The tests will be of two grades: Class A, the examination of vessels of the highest accuracy, which will be carried out at the laboratory at Teddington; and Class B, the examination of vessels intended to possess only commercial accuracy, a work which it is hoped may eventually be done locally. The fees charged range from sixpence for a pipette with one mark, to five shillings for capacity test of gas burettes and tubes at five points. A paper of instruction as to the manner of sending scientific glass ware for testing can be obtained on application to the Director, National Physical Laboratory, Teddington, Middlesex.

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

The postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London*; telephone, 2631, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Medisecra, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

The address of the Central Medical War Committee for England and Wales is 429, Strand, London, W.C.2; that of the Reference Committee of the Royal Colleges in London is the Examination Hall, 8, Queen Square, Bloomsbury, W.C.1; and that of the Scottish Medical Service Emergency Committee is Royal College of Physicians, Edinburgh.

QUERIES AND ANSWERS.

ALOIN asks for the experience of any one who has used an auto-wheel attachment to a bicycle, more especially in wet and windy weather, and in mounting moderate gradients.

BIMAR asks for suggestions for the treatment of the headache so often complained of by men who have been gassed. In the cases he has seen the headache was chiefly vertical, was very severe, and got worse as the day went on, and was aggravated by brain work. He asks if it is circulatory or neurotic in origin.

LETTERS NOTES, ETC.

STUDENTS AND KHAKI.

EX-COMBATANT writes: The medical student who joined up in 1914 and is now back to qualify—bereft of his uniform—is still open to base insults in the street. We keep applying to the War Office for permission to wear uniform (even to travel in or for occasional use), but the same icy reply always comes back: "I am directed to inform you, etc., that your request cannot be granted, etc., etc." We get no seniority on our return to the army when we have qualified, and receive no consideration as far as our feelings are concerned for our past services. We spend our own money to qualify, and are grabbed as a matter of course again when qualified. When we look around and observe the numbers of men who with no previous army service are put into khaki to do their job, often with high honorary rank, it makes our blood boil to think that we are deemed unworthy to wear uniform.

"HEALTH RESORTS OF THE BRITISH ISLANDS."

THE editor (42, Elvaston Place, S.W. 7) of the book published some time ago with this title, finding it difficult owing to war conditions to get into touch with the original contributors, asks that those writers, and others representing health resorts, will as soon as possible send to him for a revised edition notes on changes of importance during the past six years.

COLLOIDAL MANGANESE IN SEBORRHOEIC ECZEMA.

DR. WILLIAM HABGOOD (Sutton) writes: This is one case only, but to me so striking as to seem worthy of report. A girl, 9 years of age, was brought to the School Clinic of the Surrey Education Committee in March, 1917, with seborrhoeic eczema affecting the whole of the head, eyebrows, and ears. Masses of crust covered the scalp, and their removal disclosed pitted and inflamed surfaces. The eruption was complicated with impetigo on the face, neck, and shoulders. Her mother stated that the condition had existed for two years in spite of private and hospital medical treatment. The patient attended regularly this school clinic up to April, 1918; and, although at times the local applications used produced some temporary amelioration, at the end of the year she was in the same miserable condition.

On reading in your issue of April 20th, 1918, Sir Malcolm Morris's communication, I obtained the paper by Mr. J. E. R. McDonagh in the *Medical Press and Circular* of December 5th, 1917, and, following his practice, I, on May 7th, injected 1 c.cm. of intramine into the gluteal muscle. Seven days later an injection of 2 c.cm. of colloidal manganese was given, and the same dose repeated on two occasions at weekly intervals. By June 4th the skin was normal in appearance for the first time since the onset of the eruption three years ago. The skin remains clear up to the present time.

DRUGS IN INFLUENZA.

DR. E. B. FFENNELL (Southbourne) writes: During fourteen years' colliery practice I attended a great many cases of influenza, both epidemic and otherwise, and almost invariably put the patients on large doses of sp. or liq. ammon. arom. with in nearly every case very marked benefit. Often a simple mixture of this with sodium bicarbonate, and infusion of gentian or quassia was the only medicine required. To this day I dose my own family and myself with it when suspicious symptoms occur.

MEDICAL SICKNESS AND ACCIDENT SOCIETY.

OLD MEMBER writes: As one of the oldest members, may I also raise my urgent protest against the action of the members at the general meeting on May 3rd? I can hardly think that either they or the Committee can have seriously weighed the matter or they would not in such an apparently offhand and peremptory way have decided to deprive the old members of their last, and probably in some cases only, benefits during long membership at a time when the funds are in a sound condition. Many who, like myself, took an active part in founding the society, and have since worked hard in its interests, now find ourselves in the false position of having persuaded friends to join, pointing out as one of the advantages the bonus at 65. Had we old members, many of us living hundreds of miles from town, had a suspicion (we were hardly likely to have it) that our interests would be ignored and we be deprived of our rights, we should have found it quite impossible to defend them, largely on account of war contingencies, and that, too, at a time when we may be prematurely broken down in health by the extra work and strain involved, and almost broken in pocket by the increased expenses. Within my own personal knowledge I could cite instances in which this action, if carried out, will not only cause great injustice but will be cruel in its effects upon members and their dependants.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	6	0
Each additional line	0	0	9
Whole single column	4	0	0
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An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.